

263365US0XPCT
SEQUENCE LISTING



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Fort, Philippe
Raymond, Michel
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<120> NOVEL ACETYLCHOLINESTERASE GENE RESPONSIBLE FOR
INSECTICIDE RESISTANCE AND APPLICATIONS THEREOF

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<140> 10/518,072

<141> 2004-12-16

<150> FR 02/07622

<151> 2002-06-20

<150> FR 02/13799

<151> 2002-11-05

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<170> PatentIn version 2.1

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 85 90 95
 Trp Leu Gly Ile Pro Tyr Ala Gln Pro Pro Val Gly Pro Leu Arg Phe
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 Arg His Pro Arg Pro Ala Glu Lys Trp Thr Gly Val Leu Asn Thr Thr
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 Thr Pro Pro Asn Ser Cys Val Gln Ile Val Asp Thr Val Phe Gly Asp
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 Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro Leu Ser Glu Asp
 145 150 155 160
 Cys Leu Tyr Ile Asn Val Val Ala Pro Arg Pro Arg Pro Lys Asn Ala
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 Ala Val Met Leu Trp Ile Phe Gly Gly Gly Phe Tyr Ser Gly Thr Ala
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 Thr Leu Asp Val Tyr Asp His Arg Ala Leu Ala Ser Glu Glu Asn Val
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 Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu Gly Phe Leu Phe
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 Leu Gly Thr Pro Glu Ala Pro Gly Asn Ala Gly Leu Phe Asp Gln Asn
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 Pro Ser Arg Val Thr Leu Phe Gly Glu Ser Ala Gly Ala Val Ser Val
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 Ser Leu His Leu Leu Ser Ala Leu Ser Arg Asp Leu Phe Gln Arg Ala
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 <213> Culex pipiens strain S-LAB

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 85 90 95
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 180 185 190
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 210 215 220
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 Val Tyr Asp His Arg Thr Leu Ala Ser Glu Glu Asn Val Ile Val Val
 260 265 270
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 580 585 590
 Ser Arg Lys Ile Met Arg Tyr Trp Ser Asn Phe Ala Lys Thr Gly Asn
 595 600 605
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 625 630 635 640
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<213> *Culex pipiens*

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 Ser Lys Gly Asn Pro Trp Pro Arg Trp Thr Gly Val Met His Gly Asp
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<213> *Aedes aegypti*

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 35 40 45
 Ser Lys Gly Asn Pro Trp Pro Arg Trp Thr Gly Val Met His Gly Asp
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<213> *Aedes albopictus*

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 35 40 45
 Ser Lys Gly Asn Pro Trp Pro Arg Trp Thr Gly Val Met His Gly Asp
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Ser Lys Gly Asn Pro Trp Pro Arg Trp Thr Gly Val Met His Gly Asp
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Ser Lys Gly Asn Pro Trp Pro Arg Trp Thr Gly Val Met His Gly Asp
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 Ser Lys Gly Asn Pro Trp Pro Arg Trp Thr Gly Val Met His Gly Asp
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<213> Anopheles nili

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<213> Aedes aegypti

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<210> 33
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<213> *Anopheles funestus*

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35 40 45
Glu Pro Asp Val Arg Gln Thr Thr Glu Phe Gly Asn Ser Cys Val Gln
50 55 60
Ile Asp Asp Glu Val Phe Gly Asn Phe Arg Glu Met Trp Asn Ala Pro
65 70 75 80
Asn Leu Lys Ser Glu Asp Cys Leu Tyr Leu Asn Ile Trp Thr Pro Arg
85 90 95
Ile Pro Thr Ser Thr Arg Ser Gln Pro Leu Ala Val Met Val Trp Ile
100 105 110
Tyr Gly Gly Ser Phe Tyr Ser Gly Thr Thr Ala Leu Ala Leu Tyr Asp
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Tyr Arg Leu Gly Pro Leu Gly Phe Leu Ala Pro Leu Ala Gly Thr Pro
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Gly Asn Ala Gly Leu Leu Asp Gln Gln Leu Ala Leu Lys Trp Val Arg
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Asp Asn Ile Arg Ala Phe Gly Gly Asn Pro Asp Asn Val Thr Leu Met
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Gly Glu Ser Ala Gly Ala Ala Ser Ile Gly Leu His Thr Val Ala Pro
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Ser Ser Arg Gly Leu Phe Asn Arg Val Ile Phe Gln Ser Gly Asn Gln
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Met Thr Pro Trp Ser Thr Ile Ser Leu Pro Thr Ser Leu Asn Arg Thr
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Arg Ile Leu Ala Ala Asn Leu Arg Cys Pro Asn Pro Arg Thr Ser Ser
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Pro Val His 290	Gly Thr Ser Phe 295	Leu Pro Glu His Pro 300
Arg Lys Gly 305	Glu Gln Ala Asp Val 310	Asp Val Met Ala Gly 315
Asn Glu Gly 325	Ser Tyr Phe Thr Leu Tyr 330	Thr Val Pro Gly Phe 335
Ser Ser Gln 340	Ser Ile Leu Ser Lys 345	Glu Tyr Ile Asp Gly 350
Leu Ser Gly 355	Ile Lys Thr Asn Glu 360	Leu Gly Arg Ser Gly 365
Met Tyr Ala 370	Asp Trp Glu Asn Pro 375	Asp Asn Val Leu Gln 380
Gly Val Asn 385	Glu Ile Val Gly Asp 390	Phe His Val Val Cys 395
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Met Gly Val 435	Met His Gly Tyr Glu 440	Ile Glu Leu Met Phe 445
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Ser Val Ser 465	Arg Arg Met Val His 470	Tyr Trp Thr Asn Phe 475
Gly Asn Pro 485	Asn Gly Leu Arg Ser 490	Ala Asn Glu Leu Asp 495
Thr Asp Trp 500	Pro Arg Phe Asp Asp 505	Val Arg Gln Arg Tyr 510
Gly Ile Asp 515	Asp Asp Val Met Gly 520	Pro Phe Pro Asn Ser 525
Ala Phe Trp 530	Glu Arg Tyr Leu Pro 535	Ser Leu Lys Leu Ala 540
Asp Met Asp 545	Glu Val Glu Thr Lys 550	Trp Lys Ile Glu Phe 555
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Asp Gly Lys 580	Gln Ser Ser Cys Pro 585	Asn

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<211> 583

<212> PRT

<213> Ciona savignyi

<400> 52

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 35 40 45
 Pro Asp Val Lys Met Thr Ser Glu Phe Gly Asn Ser Cys Ile Gln Glu
 50 55 60
 Asp Asp Leu Val Phe Gly Asn Phe Thr Gly Gly Ser Gln Met Trp Asn
 65 70 75 80
 Ser Pro Asn Ala Lys Ser Glu Asp Cys Leu Tyr Leu Asn Val Trp Thr
 85 90 95
 Pro Val Arg Ser Arg His Ala Glu Pro Leu Ala Val Leu Val Trp Ile
 100 105 110
 Tyr Gly Gly Ser Tyr Tyr Ser Gly Thr Ser Ser Leu Ala Leu Tyr Asp
 115 120 125
 Gly Arg Tyr Leu Ala Ala Thr Gly Gly Val Val Val Val Ser Leu Asn
 130 135 140
 Tyr Arg Leu Gly Pro Ile Gly Phe Leu Ala Pro Leu Ala Asp Glu Thr
 145 150 155 160
 Pro Gly Asn Val Gly Leu Leu Asp Gln Gln Leu Ala Leu Lys Trp Val
 165 170 175
 Arg Asp Asn Ile Arg Glu Phe Gly Gly Asn Pro Asn Asn Val Thr Val
 180 185 190
 Met Gly Glu Ser Ala Gly Ala Ala Ser Ile Gly Leu His Thr Ile Ala
 195 200 205
 Pro Ser Ser Arg Gly Leu Phe Ser Arg Val Ile Leu Gln Ser Gly Asn
 210 215 220
 Gln Met Thr Pro Trp Ser Thr Ile Ser Leu Glu Thr Ser Leu Asn Arg
 225 230 235 240
 Thr Arg Thr Leu Ala Ala Asn Leu Asn Cys Pro Lys Pro Arg Thr Ala
 245 250 255
 Ser Glu Ala Asp Ile Leu Ala Cys Leu Arg Thr His Thr Ala Asn Glu
 260 265 270
 Val Phe Ala Gly Ser Trp Ile Thr Lys Glu Ile Phe Asp Phe Pro Phe
 275 280 285
 Val Pro Val His Gly Thr Thr Phe Leu Pro Glu His Pro His Glu Val
 290 295 300
 Thr Arg Arg Gly Asp Gln Ala Glu Val Asp Val Leu Ala Gly Tyr Asn
 305 310 315 320
 Thr Asn Glu Gly Ser Tyr Phe Thr Ile Tyr Thr Val Pro Gly Tyr Asn
 325 330 335

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Ile Thr Thr Asn Ser Val Leu Asn Arg Arg Gln Tyr Leu Ala Gly Val
340 345 350
Asp Leu Ser Gly Leu Lys Thr Asn Thr Met Gly Arg Ser Ala Ala Ala
355 360 365
Phe Met Tyr Thr Asp Trp Glu Asn Leu Asp Asn Glu Leu Gln Tyr Arg
370 375 380
Asp Ala Val Asn Glu Ile Val Gly Asp Phe His Val Val Cys Pro Thr
385 390 395 400
Val Leu Val Ser Lys Arg His Ser Asn Ser Phe Pro Asn Arg Asn Val
405 410 415
Phe Leu Tyr His Leu Ser Tyr Arg Val Ser Thr Asn Pro Trp Pro Ile
420 425 430
Trp Met Gly Val Met His Gly Tyr Glu Ile Glu Leu Met Phe Gly Thr
435 440 445
Pro Trp Phe Gly Asn Ser Lys Phe Thr Arg Gly Tyr Ser Asp Leu Asp
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Arg Ser Val Ser Arg Arg Met Val Arg Tyr Trp Thr Asn Phe Ala Lys
465 470 475 480
Phe Gly Asn Pro Asn Gly Leu Arg Asn Gln Asn Gln Glu Leu Val Ser
485 490 495
Asp Trp Pro Arg Phe Asn Asp Val Thr Gln Arg Tyr Leu Glu Ile Ala
500 505 510
Asp Asp Asp Val Thr Met Ala Pro Phe Pro Asp Ser Phe Arg Cys Ala
515 520 525
Phe Trp Gln Lys Tyr Leu Pro Ser Leu Gln Leu Ala Ser Ser Asn Met
530 535 540
Asp Glu Val Glu Thr Lys Trp Lys Ile Glu Phe His Arg Trp Ser Glu
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Ser Met Asp Leu Trp Asp Arg Ser Phe Lys Ala Tyr Ser Ser Asp Asp
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Lys Gln Asn Ser Cys Pro Asn
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20 25 30
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35 40 45
Ser Thr Met Val Gln Gly Arg Glu Val His Val Phe Asn Gly Val Pro
50 55 60

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Phe Ala Lys Pro Pro Val Asp Ser Leu Arg Phe Lys Lys Pro Val Pro
 65 70 75 80
 Ala Glu Pro Trp His Gly Val Leu Asp Ala Thr Arg Leu Pro Pro Ser
 85 90 95
 Cys Ile Gln Glu Arg Tyr Glu Tyr Phe Pro Gly Phe Ala Gly Glu Glu
 100 105 110
 Met Trp Asn Pro Asn Thr Asn Val Ser Glu Asp Cys Leu Tyr Leu Asn
 115 120 125
 Ile Trp Val Pro Thr Lys Thr Arg Leu Arg His Gly Arg Gly Leu Asn
 130 135 140
 Phe Gly Ser Asn Asp Tyr Phe Gln Asp Asp Asp Asp Phe Gln Arg Gln
 145 150 155 160
 His Gln Ser Lys Gly Gly Leu Ala Met Leu Val Trp Ile Tyr Gly Gly
 165 170 175
 Gly Phe Met Ser Gly Thr Ser Thr Leu Asp Ile Tyr Asn Ala Glu Ile
 180 185 190
 Leu Ala Ala Val Gly Asn Val Ile Val Ala Ser Met Gln Tyr Arg Val
 195 200 205
 Gly Ala Phe Gly Phe Leu Tyr Leu Ala Pro Tyr Ile Asn Gly Tyr Glu
 210 215 220
 Glu Asp Ala Pro Gly Asn Met Gly Met Trp Asp Gln Ala Leu Ala Ile
 225 230 235 240
 Arg Trp Leu Lys Glu Asn Ala Lys Ala Phe Gly Gly Asp Pro Asp Leu
 245 250 255
 Ile Thr Leu Phe Gly Glu Ser Ala Gly Gly Ser Ser Val Ser Leu His
 260 265 270
 Leu Leu Ser Pro Val Thr Arg Gly Leu Ser Lys Arg Gly Ile Leu Gln
 275 280 285
 Ser Gly Thr Leu Asn Ala Pro Trp Ser His Met Thr Ala Glu Lys Ala
 290 295 300
 Leu Gln Ile Ala Glu Gly Leu Ile Asp Asp Cys Asn Cys Asn Leu Thr
 305 310 315 320
 Met Leu Lys Glu Ser Pro Ser Thr Val Met Gln Cys Met Arg Asn Val
 325 330 335
 Asp Ala Lys Thr Ile Ser Val Gln Gln Trp Asn Ser Tyr Ser Gly Ile
 340 345 350
 Leu Gly Phe Pro Ser Ala Pro Thr Ile Asp Gly Val Phe Met Thr Ala
 355 360 365
 Asp Pro Met Thr Met Leu Arg Glu Ala Asn Leu Glu Gly Ile Asp Ile
 370 375 380
 Leu Val Gly Ser Asn Arg Asp Glu Gly Thr Tyr Phe Leu Leu Tyr Asp
 385 390 395 400
 Phe Ile Asp Tyr Phe Glu Lys Asp Ala Ala Thr Ser Leu Pro Arg Asp
 405 410 415
 Lys Phe Leu Glu Ile Met Asn Thr Ile Phe Asn Lys Ala Ser Glu Pro
 420 425 430

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Glu Arg Glu Ala Ile Ile Phe Gln Tyr Thr Gly Trp Glu Ser Gly Asn
 435 440 445
 Asp Gly Tyr Gln Asn Gln His Gln Val Gly Arg Ala Val Gly Asp His
 450 455 460
 Phe Phe Ile Cys Pro Thr Asn Glu Phe Ala Leu Gly Leu Thr Glu Arg
 465 470 475 480
 Gly Ala Ser Val His Tyr Tyr Tyr Phe Thr His Arg Thr Ser Thr Ser
 485 490 495
 Leu Trp Gly Glu Trp Met Gly Val Leu His Gly Asp Glu Val Glu Tyr
 500 505 510
 Ile Phe Gly Gln Pro Met Asn Ala Ser Leu Gln Tyr Arg Gln Arg Glu
 515 520 525
 Arg Asp Leu Ser Arg Arg Met Val Leu Ser Val Ser Glu Phe Ala Arg
 530 535 540
 Thr Gly Asn Pro Ala Leu Glu Gly Glu His Trp Pro Leu Tyr Thr Arg
 545 550 555 560
 Glu Asn Pro Ile Tyr Phe Ile Phe Asn Ala Glu Gly Glu Asp Asp Leu
 565 570 575
 Arg Gly Glu Lys Tyr Gly Arg Gly Pro Met Ala Thr Ser Cys Ala Phe
 580 585 590
 Trp Asn Asp Phe Leu Pro Arg Leu Arg Ala Trp Ser Val Pro Leu Lys
 595 600 605
 Asp Pro Cys Lys Leu Asp Asp His Thr Ser Ile Ala Ser Thr Ala Arg
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 Arg Leu Val Ala Ala
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20

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19

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 <213> Culex pipiens strain SR

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 cga cat ctg ata ctg tgc agt ttg ggg ctg tac tcc atc ctc gtg cag 96
 Arg His Leu Ile Leu Cys Ser Leu Gly Leu Tyr Ser Ile Leu Val Gln
 20 25 30
 tcg gtc cat tgc cgg cat cat gac atc ggt agt tcg gtg gca cac cag 144
 Ser Val His Cys Arg His His Asp Ile Gly Ser Ser Val Ala His Gln
 35 40 45
 cta gga tcg aaa tac tca caa tca tcc tcg tta tcg tca tcc tcg caa 192
 Leu Gly Ser Lys Tyr Ser Gln Ser Ser Ser Leu Ser Ser Ser Gln
 50 55 60
 tcg tca tcg tcg tta gct gaa gag gcc acg ctg aat aaa gat tca gat 240
 Ser Ser Ser Ser Leu Ala Glu Glu Ala Thr Leu Asn Lys Asp Ser Asp
 65 70 75 80
 gca ttt ttt aca cca tat ata ggt cac gga gat tct gtt cga att gta 288
 Ala Phe Phe Thr Pro Tyr Ile Gly His Gly Asp Ser Val Arg Ile Val
 85 90 95
 gat gcc gaa tta ggt aca tta gag cgc gag cat atc cat agc act acg 336
 Asp Ala Glu Leu Gly Thr Leu Glu Arg Glu His Ile His Ser Thr Thr
 100 105 110
 acc cgg cgg cgt ggc ctg acc cgg agg gag tcc agc tcc gat gcc acc 384
 Thr Arg Arg Arg Gly Leu Thr Arg Arg Glu Ser Ser Ser Asp Ala Thr
 115 120 125
 gac tcg gac cca ctg gta ata acg acg gac aag ggc aaa atc cgt gga 432
 Asp Ser Asp Pro Leu Val Ile Thr Thr Asp Lys Gly Lys Ile Arg Gly
 130 135 140
 acg aca ctg gaa gcg cca agt gga aag aag gtg gac gca tgg atg ggc 480
 Thr Thr Leu Glu Ala Pro Ser Gly Lys Lys Val Asp Ala Trp Met Gly
 145 150 155 160
 att ccg tac gcg cag ccc ccg ctg ggt ccg ctc cgg ttt cga cat ccg 528
 Ile Pro Tyr Ala Gln Pro Pro Leu Gly Pro Leu Arg Phe Arg His Pro
 165 170 175
 cga ccc gcc gaa aga tgg acc ggt gtg ctg aac gcg acc aaa cca ccc 576
 Arg Pro Ala Glu Arg Trp Thr Gly Val Leu Asn Ala Thr Lys Pro Pro
 180 185 190
 aac tcc tgc gtc cag atc gtg gac acc gtg ttc ggt gac ttc ccg ggc 624
 Asn Ser Cys Val Gln Ile Val Asp Thr Val Phe Gly Asp Phe Pro Gly
 195 200 205
 gcg acc atg tgg aac ccg aac aca ccc ctc tcg gag gac tgt ctg tac 672
 Ala Thr Met Trp Asn Pro Asn Thr Pro Leu Ser Glu Asp Cys Leu Tyr
 210 215 220
 atc aac gtg gtc gtg cca agg ccg agg ccc aag aat gcc gct gtc atg 720
 Ile Asn Val Val Val Pro Arg Pro Arg Pro Lys Asn Ala Ala Val Met
 225 230 235 240

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225				230				235				240				
ctg	tgg	atc	ttt	ggg	ggt	agc	ttc	tac	tcc	ggg	act	gcc	acg	ttg	gac	768
Leu	Trp	Ile	Phe	Gly	Gly	Ser	Phe	Tyr	Ser	Gly	Thr	Ala	Thr	Leu	Asp	
				245					250					255		
gtg	tac	gat	cat	cgg	acg	ctg	gcc	tcg	gag	gag	aac	gtg	atc	gtg	ggt	816
Val	Tyr	Asp	His	Arg	Thr	Leu	Ala	Ser	Glu	Glu	Asn	Val	Ile	Val	Val	
			260					265					270			
tcg	ctg	cag	tac	cgt	gtc	gca	agt	ctt	ggt	ttt	ctc	ttc	ctg	ggc	act	864
Ser	Leu	Gln	Tyr	Arg	Val	Ala	Ser	Leu	Gly	Phe	Leu	Phe	Leu	Gly	Thr	
		275					280					285				
ccg	gag	gca	cct	ggt	aac	gcg	ggg	ctg	ttt	gat	caa	aac	ctg	gca	ctg	912
Pro	Glu	Ala	Pro	Gly	Asn	Ala	Gly	Leu	Phe	Asp	Gln	Asn	Leu	Ala	Leu	
	290					295					300					
aga	tgg	gtc	cgc	gac	aac	atc	cac	cgg	ttc	ggc	ggt	gac	ccc	tcg	cgg	960
Arg	Trp	Val	Arg	Asp	Asn	Ile	His	Arg	Phe	Gly	Gly	Asp	Pro	Ser	Arg	
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gtc	aca	ctg	ttc	ggc	gag	agc	gcc	gga	gcg	gtc	tcg	ggt	tcg	ctg	cac	1008
Val	Thr	Leu	Phe	Gly	Glu	Ser	Ala	Gly	Ala	Val	Ser	Val	Ser	Leu	His	
				325				330						335		
ctg	ctg	tcg	gcg	ctc	tcg	cgg	gac	ctg	ttc	cag	cgg	gcc	atc	ctc	cag	1056
Leu	Leu	Ser	Ala	Leu	Ser	Arg	Asp	Leu	Phe	Gln	Arg	Ala	Ile	Leu	Gln	
			340					345					350			
agt	ggc	tcc	ccg	acg	gcc	cca	tgg	gcg	ctg	ggt	tcg	cgc	gaa	gaa	gct	1104
Ser	Gly	Ser	Pro	Thr	Ala	Pro	Trp	Ala	Leu	Val	Ser	Arg	Glu	Glu	Ala	
		355					360					365				
acg	ctt	aga	gct	ctt	cgt	ctg	gcc	gag	gcc	gtc	aac	tgt	ccg	cac	gat	1152
Thr	Leu	Arg	Ala	Leu	Arg	Leu	Ala	Glu	Ala	Val	Asn	Cys	Pro	His	Asp	
		370				375					380					
gcg	acc	aag	ctg	agc	gat	gcc	gtc	gaa	tgt	ctg	cga	acc	aag	gat	ccg	1200
Ala	Thr	Lys	Leu	Ser	Asp	Ala	Val	Glu	Cys	Leu	Arg	Thr	Lys	Asp	Pro	
					390					395					400	
aac	gag	ctg	gtc	gac	aat	gag	tgg	ggc	acg	ctg	ggg	atc	tgc	gag	ttt	1248
Asn	Glu	Leu	Val	Asp	Asn	Glu	Trp	Gly	Thr	Leu	Gly	Ile	Cys	Glu	Phe	
				405				410						415		
ccg	ttc	ggt	ccg	ggt	gtg	gac	ggt	gcc	ttc	ctc	gat	gag	aca	ccg	cag	1296
Pro	Phe	Val	Pro	Val	Val	Asp	Gly	Ala	Phe	Leu	Asp	Glu	Thr	Pro	Gln	
			420					425					430			
cgt	tcg	ttg	gcc	agc	ggt	cgc	ttc	aag	aaa	acg	gac	atc	ctg	acc	ggc	1344
Arg	Ser	Leu	Ala	Ser	Gly	Arg	Phe	Lys	Lys	Thr	Asp	Ile	Leu	Thr	Gly	
		435					440					445				
agc	aac	acc	gag	gag	ggt	tac	tac	ttt	atc	att	tac	tat	cta	acc	gaa	1392
Ser	Asn	Thr	Glu	Glu	Gly	Tyr	Tyr	Phe	Ile	Ile	Tyr	Tyr	Leu	Thr	Glu	
		450				455					460					
ctg	ctc	agg	aaa	gag	gaa	ggg	gtc	acg	gta	aca	cgc	gag	gag	ttc	cta	1440
Leu	Leu	Arg	Lys	Glu	Glu	Gly	Val	Thr	Val	Thr	Arg	Glu	Glu	Phe	Leu	
				470					475						480	
cag	gcc	gtc	cgg	gag	ttg	aat	ccg	tac	gtg	aac	ggt	gcc	gcc	cgg	cag	1488
Gln	Ala	Val	Arg	Glu	Leu	Asn	Pro	Tyr	Val	Asn	Gly	Ala	Ala	Arg	Gln	
				485					490					495		
gcc	atc	gtg	ttc	gag	tac	acg	gac	tgg	atc	gaa	ccg	gac	aac	ccg	aac	1536
Ala	Ile	Val	Phe	Glu	Tyr	Thr	Asp	Trp	Ile	Glu	Pro	Asp	Asn	Pro	Asn	

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agc aac cgt gac gcg ctc gac aag atg gtc ggg gat tat cac ttc acc Ser Asn Arg Asp Ala Leu Asp Lys Met Val Gly Asp Tyr His Phe Thr 515 520 525			1584
tgc aac gtg aac gag ttc gcc cag cgg tac gcc gag gag ggc aac aat Cys Asn Val Asn Glu Phe Ala Gln Arg Tyr Ala Glu Glu Gly Asn Asn 530 535 540			1632
gtg ttc atg tac ctg tac acg cac aga agc aaa gga aat ccc tgg ccg Val Phe Met Tyr Leu Tyr Thr His Arg Ser Lys Gly Asn Pro Trp Pro 545 550 555 560			1680
agg tgg act ggc gtg atg cac ggc gac gag atc aac tac gtg ttt ggc Arg Trp Thr Gly Val Met His Gly Asp Glu Ile Asn Tyr Val Phe Gly 565 570 575			1728
gaa ccg ctg aac tcg gcc ctc ggc tac cag gac gac gag aag gac ttt Glu Pro Leu Asn Ser Ala Leu Gly Tyr Gln Asp Asp Glu Lys Asp Phe 580 585 590			1776
agc cgg aaa att atg cga tac tgg tcc aac ttt gcc aag act ggc aat Ser Arg Lys Ile Met Arg Tyr Trp Ser Asn Phe Ala Lys Thr Gly Asn 595 600 605			1824
cca aac ccg agt acg ccg agc gtg gac ctg ccc gaa tgg ccc aag cac Pro Asn Pro Ser Thr Pro Ser Val Asp Leu Pro Glu Trp Pro Lys His 610 615 620			1872
acc gcc cac gga cga cac tat ctg gag ctg gga ctg aac acg acc ttc Thr Ala His Gly Arg His Tyr Leu Glu Leu Gly Leu Asn Thr Thr Phe 625 630 635 640			1920
gtg gga cgg ggc cca cga ttg cgg cag tgc gct ttc tgg aag aaa tat Val Gly Arg Gly Pro Arg Leu Arg Gln Cys Ala Phe Trp Lys Lys Tyr 645 650 655			1968
ttg ccg caa cta gta gca gct acc tct aac ctc caa gta act ccc gcg Leu Pro Gln Leu Val Ala Ala Thr Ser Asn Leu Gln Val Thr Pro Ala 660 665 670			2016
cct agc gta cct tgc gaa agc agc tca aca tct tat cga tcc act cta Pro Ser Val Pro Cys Glu Ser Ser Ser Thr Thr Tyr Arg Ser Thr Leu 675 680 685			2064
ctt cta ata gtc aca cta ctt tta gta acg cgg ttc aag att taa Leu Leu Ile Val Thr Leu Leu Leu Val Thr Arg Phe Lys Ile 690 695 700			2109

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 <212> PRT
 <213> Culex pipiens strain SR

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 Ser Val His Cys Arg His His Asp Ile Gly Ser Ser Val Ala His Gln
 35 40 45
 Leu Gly Ser Lys Tyr Ser Gln Ser Ser Ser Leu Ser Ser Ser Gln
 50 55 60

263365US0XPCT

Ser Ser Ser Ser Leu Ala Glu Glu Ala Thr Leu Asn Lys Asp Ser Asp
 65 70 75 80
 Ala Phe Phe Thr Pro Tyr Ile Gly His Gly Asp Ser Val Arg Ile Val
 85 90 95
 Asp Ala Glu Leu Gly Thr Leu Glu Arg Glu His Ile His Ser Thr Thr
 100 105 110
 Thr Arg Arg Arg Gly Leu Thr Arg Arg Glu Ser Ser Ser Asp Ala Thr
 115 120 125
 Asp Ser Asp Pro Leu Val Ile Thr Thr Asp Lys Gly Lys Ile Arg Gly
 130 135 140
 Thr Thr Leu Glu Ala Pro Ser Gly Lys Lys Val Asp Ala Trp Met Gly
 145 150 155 160
 Ile Pro Tyr Ala Gln Pro Pro Leu Gly Pro Leu Arg Phe Arg His Pro
 165 170 175
 Arg Pro Ala Glu Arg Trp Thr Gly Val Leu Asn Ala Thr Lys Pro Pro
 180 185 190
 Asn Ser Cys Val Gln Ile Val Asp Thr Val Phe Gly Asp Phe Pro Gly
 195 200 205
 Ala Thr Met Trp Asn Pro Asn Thr Pro Leu Ser Glu Asp Cys Leu Tyr
 210 215 220
 Ile Asn Val Val Val Pro Arg Pro Arg Pro Lys Asn Ala Ala Val Met
 225 230 235 240
 Leu Trp Ile Phe Gly Gly Ser Phe Tyr Ser Gly Thr Ala Thr Leu Asp
 245 250 255
 Val Tyr Asp His Arg Thr Leu Ala Ser Glu Glu Asn Val Ile Val Val
 260 265 270
 Ser Leu Gln Tyr Arg Val Ala Ser Leu Gly Phe Leu Phe Leu Gly Thr
 275 280 285
 Pro Glu Ala Pro Gly Asn Ala Gly Leu Phe Asp Gln Asn Leu Ala Leu
 290 295 300
 Arg Trp Val Arg Asp Asn Ile His Arg Phe Gly Gly Asp Pro Ser Arg
 305 310 315 320
 Val Thr Leu Phe Gly Glu Ser Ala Gly Ala Val Ser Val Ser Leu His
 325 330 335
 Leu Leu Ser Ala Leu Ser Arg Asp Leu Phe Gln Arg Ala Ile Leu Gln
 340 345 350
 Ser Gly Ser Pro Thr Ala Pro Trp Ala Leu Val Ser Arg Glu Glu Ala
 355 360 365
 Thr Leu Arg Ala Leu Arg Leu Ala Glu Ala Val Asn Cys Pro His Asp
 370 375 380
 Ala Thr Lys Leu Ser Asp Ala Val Glu Cys Leu Arg Thr Lys Asp Pro
 385 390 395 400
 Asn Glu Leu Val Asp Asn Glu Trp Gly Thr Leu Gly Ile Cys Glu Phe
 405 410 415
 Pro Phe Val Pro Val Val Asp Gly Ala Phe Leu Asp Glu Thr Pro Gln
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420	425	430
Arg Ser Leu Ala Ser Gly Arg Phe Lys Lys Thr Asp Ile Leu Thr Gly	440	445
Ser Asn Thr Glu Glu Gly Tyr Tyr Phe Ile Ile Tyr Tyr Leu Thr Glu	455	460
Leu Leu Arg Lys Glu Glu Gly Val Thr Val Thr Arg Glu Glu Phe Leu	470	475
Gln Ala Val Arg Glu Leu Asn Pro Tyr Val Asn Gly Ala Ala Arg Gln	485	490
Ala Ile Val Phe Glu Tyr Thr Asp Trp Ile Glu Pro Asp Asn Pro Asn	500	505
Ser Asn Arg Asp Ala Leu Asp Lys Met Val Gly Asp Tyr His Phe Thr	515	520
Cys Asn Val Asn Glu Phe Ala Gln Arg Tyr Ala Glu Glu Gly Asn Asn	530	535
Val Phe Met Tyr Leu Tyr Thr His Arg Ser Lys Gly Asn Pro Trp Pro	545	550
Arg Trp Thr Gly Val Met His Gly Asp Glu Ile Asn Tyr Val Phe Gly	565	570
Glu Pro Leu Asn Ser Ala Leu Gly Tyr Gln Asp Asp Glu Lys Asp Phe	580	585
Ser Arg Lys Ile Met Arg Tyr Trp Ser Asn Phe Ala Lys Thr Gly Asn	595	600
Pro Asn Pro Ser Thr Pro Ser Val Asp Leu Pro Glu Trp Pro Lys His	610	615
Thr Ala His Gly Arg His Tyr Leu Glu Leu Gly Leu Asn Thr Thr Phe	625	630
Val Gly Arg Gly Pro Arg Leu Arg Gln Cys Ala Phe Trp Lys Lys Tyr	645	650
Leu Pro Gln Leu Val Ala Ala Thr Ser Asn Leu Gln Val Thr Pro Ala	660	665
Pro Ser Val Pro Cys Glu Ser Ser Ser Thr Ser Tyr Arg Ser Thr Leu	675	680
Leu Leu Ile Val Thr Leu Leu Leu Val Thr Arg Phe Lys Ile	695	700

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21

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 Val Asp Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro Pro Leu Gly Pro
 20 25 30

ctc cgg ttt cga cat ccg cga ccc gcc gaa aga tgg acc ggt gtg ctg 143
 Leu Arg Phe Arg His Pro Arg Pro Ala Glu Arg Trp Thr Gly Val Leu
 35 40 45

aac gcg acc aaa cca ccc aac tcc tgc gtc cag atc gtg gac acc gtg 191
 Asn Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile Val Asp Thr Val
 50 55 60

ttc ggt gac ttc ccg ggg gcc acc atg tgg aac ccg aac aca ccc ctc 239
 Phe Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro Leu
 65 70 75

tcg gag gac tgt ctg tac atc aac gtg gtc gtg cca agg ccg agg ccc 287
 Ser Glu Asp Cys Leu Tyr Ile Asn Val Val Val Pro Arg Pro Arg Pro
 80 85 90 95

aag aat gcc gct gtc atg ctg tgg atc ttt ggg ggt agc ttc tac tcc 335
 Lys Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly Ser Phe Tyr Ser
 100 105 110

ggg act gcc acg ttg gac gtg tac gat cat cgg acg ctg gcc tcg gag 383
 Gly Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr Leu Ala Ser Glu
 115 120

gag aac gtg atc gtg gtt tcg ctg cag tac cgt gtc gca agt ctt ggt 431
 Glu Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu Gly
 130 135 140

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 Phe Leu Phe Leu Gly Thr Pro Glu Ala
 145 150

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<222> (3)..(458)

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aag gtg gac gca tgg atg ggc att ccg tac gcg cag ccc ccg ctg ggt 95
  Lys Val Asp Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro Pro Leu Gly
                20           25           30

ccg ctc cgg ttt cga cat ccg cga ccc gcc gaa aga tgg acc ggt gtg 143
  Pro Leu Arg Phe Arg His Pro Arg Pro Ala Glu Arg Trp Thr Gly Val
                35           40           45

ctg aac gcg acc aaa ccg ccc aac tcc tgc gtc cag atc gtg gac acc 191
  Leu Asn Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile Val Asp Thr
                50           55           60

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  Val Phe Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro
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  Leu Ser Glu Asp Cys Leu Tyr Ile Asn Val Val Val Pro Arg Pro Arg
    80           85           90           95

ccc aag aat gcc gcc gtc atg ctg tgg atc ttc ggg ggt ggc ttc tac 335
  Pro Lys Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly Gly Phe Tyr
                100           105           110

tcc ggg act gcc acg ctg gac gtg tac gac cac cgg acg ctg gcc tcg 383
  Ser Gly Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr Leu Ala Ser
                115           120           125

gag gag aac gtg atc gta gtt tcg ctg cag tac cgt gtc gca agt ctt 431
  Glu Glu Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu
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ggg ttt ctc ttc ctg ggc aca ccg gag gca 461
  Gly Phe Leu Phe Leu Gly Thr Pro Glu
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<211> 448

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<213> Culex pipiens pipiens strain S-LAB (S)

<220>

<221> CDS

<222> (3)..(446)

<400> 62

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gtg gac gca tgg atg ggc att ccg tac gcg cag ccc ccg ctg ggt ccg 95
  Val Asp Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro Pro Leu Gly Pro
                20           25           30

ctc cgg ttt cga cat ccg cga ccc gcc gaa aga tgg acc ggt gtg ctg 143
  Leu Arg Phe Arg His Pro Arg Pro Ala Glu Arg Trp Thr Gly Val Leu
                35           40           45

aac gcg acc aaa ccg ccc aac tcc tgc gtc cag atc gtg gac acc gtg 191
  Asn Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile Val Asp Thr Val
                50           55           60

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ttc ggt gac ttc ccg ggg gcc acc atg tgg aac ccg aac aca ccg ctc Phe Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro Leu 65 70 75	239
tcg gag gac tgt ctg tac atc aac gtg gtc gtg cca ccg ccc agg ccc Ser Glu Asp Cys Leu Tyr Ile Asn Val Val Val Pro Arg Pro Arg Pro 80 85 90 95	287
aag aat gcc gcc gtc atg ctg tgg atc ttc ggg ggt ggc ttc tac tcc Lys Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly Gly Phe Tyr Ser 100 105 110	335
ggg act gcc acg ctg gac gtg tac gac cac ccg acg ctg gcc tcg gag Gly Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr Leu Ala Ser Glu 115 120 125	383
gag aac gtg atc gta gtt tcg ctg cag tac cgt gtc gca agt ctt ggg Glu Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu Gly 130 135 140	431
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ctc ccg ttt cga cat ccg cga ccc gcc gaa aga tgg acc ggt gtg ctg Leu Arg Phe Arg His Pro Arg Pro Ala Glu Arg Trp Thr Gly Val Leu 35 40 45	143
aac gcg acc aaa cca ccc aac tcc tgc gtc cag atc gtg gac acc gtg Asn Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile Val Asp Thr Val 50 55 60	191
ttc ggt gac ttc ccg ggg gcc acc atg tgg aac ccg aac aca ccc ctc Phe Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro Leu 65 70 75	239
tcg gag gac tgt ctg tac atc aac gtg gtc gtg cca agg ccg agg ccc Ser Glu Asp Cys Leu Tyr Ile Asn Val Val Val Pro Arg Pro Arg Pro 80 85 90 95	287
aag aat gcc gct gtc atg ctg tgg atc ttt ggg ggt agc ttc tac tcc Lys Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly Ser Phe Tyr Ser 100 105 110	335
ggg act gcc acg ttg gac gtg tac gat cat ccg acg ctg gcc tcg gag Gly Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr Leu Ala Ser Glu 115 120 125	383
gag aac gtg atc gtg gtt tcg ctg cag tac cgt gtc gca agt ctt ggt Page 40	431

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Glu Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu Gly
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145 150

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<213> Culex pipiens pipiens strain Praias (R)

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aag gtg gac gca tgg atg ggc att ccg tac gcg cag ccc ccg ctg ggt 96
Lys Val Asp Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro Leu Gly
20 25 30

ccg ctc cgg ttt cga cat ccg cga ccc gcc gaa aga tgg acc ggt gtg 144
Pro Leu Arg Phe Arg His Pro Arg Pro Ala Glu Arg Trp Thr Gly Val
35 40 45

ctg aac gcg acc aaa cca ccc aac tcc tgc gtc cag atc gtg gac acc 192
Leu Asn Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile Val Asp Thr
50 55 60

gtg ttc ggt gac ttc ccg ggg gcc acc atg tgg aac ccg aac aca ccc 240
Val Phe Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro
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ctc tcg gag gac tgt ctg tac atc aac gtg gtc gtg cca agg ccg agg 288
Leu Ser Glu Asp Cys Leu Tyr Ile Asn Val Val Val Pro Arg Pro Arg
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Pro Lys Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly Ser Phe Tyr
100 105 110

tcc ggg act gcc acg ttg gac gtg tac gat cat cgg acg ctg gcc tcg 384
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gag gag aac gtg atc gtg gtt tcg ctg cag tac cgt gtc gca agt ctt 432
Glu Glu Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu
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Lys	Val	Asp	Ala	Trp	Met	Gly	Ile	Pro	Tyr	Ala	Gln	Pro	Pro	Leu	Gly	
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ccg	ctc	cgg	ttt	cga	cat	ccg	cga	ccc	gcc	gaa	aga	tgg	acc	ggt	gtg	144
Pro	Leu	Arg	Phe	Arg	His	Pro	Arg	Pro	Ala	Glu	Arg	Trp	Thr	Gly	Val	
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Leu	Asn	Ala	Thr	Lys	Pro	Pro	Asn	Ser	Cys	Val	Gln	Ile	Val	Asp	Thr	
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gtg	ttc	ggt	gac	ttc	ccg	ggg	gcc	acc	atg	tgg	aac	ccg	aac	aca	ccc	240
Val	Phe	Gly	Asp	Phe	Pro	Gly	Ala	Thr	Met	Trp	Asn	Pro	Asn	Thr	Pro	
65					70					75					80	
ctc	tcg	gag	gac	tgt	ctg	tac	atc	aac	gtg	gtc	gtg	cca	agg	ccg	agg	288
Leu	Ser	Glu	Asp	Cys	Leu	Tyr	Ile	Asn	Val	Val	Val	Pro	Arg	Pro	Arg	
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ccc	aag	aat	gcc	gct	gtc	atg	ctg	tgg	atc	ttt	ggg	ggt	agc	ttc	tac	336
Pro	Lys	Asn	Ala	Ala	Val	Met	Leu	Trp	Ile	Phe	Gly	Gly	Ser	Phe	Tyr	
			100					105					110			
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Ser	Gly	Thr	Ala	Thr	Leu	Asp	Val	Tyr	Asp	His	Arg	Thr	Leu	Ala	Ser	
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gag	gag	aac	gtg	atc	gtg	gtt	tcg	ctg	cag	tac	cgt	gtc	gca	agt	ctt	432
Glu	Glu	Asn	Val	Ile	Val	Val	Ser	Leu	Gln	Tyr	Arg	Val	Ala	Ser	Leu	
	130					135					140					
ggt	ttt	ctc	ttc	ctg	ggc	aca	ccg	gag	gca	c						463
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<211> 448

<212> DNA

<213> Culex pipiens pipiens strain Bruges A (S)

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Leu	Arg	Phe	Arg	His	Pro	Arg	Pro	Ala	Glu	Arg	Trp	Thr	Gly	Val	Leu	
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Asn	Ala	Thr	Lys	Pro	Pro	Asn	Ser	Cys	Val	Gln	Ile	Val	Asp	Thr	Val	
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Phe	Gly	Asp	Phe	Pro	Gly	Ala	Thr	Met	Trp	Asn	Pro	Asn	Thr	Pro	Leu	
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tcg	gag	gac	tgt	ctg	tac	atc	aac	gtg	gtc	gtg	cca	agg	ccg	agg	ccc	287
Ser	Glu	Asp	Cys	Leu	Tyr	Ile	Asn	Val	Val	Val	Pro	Arg	Pro	Arg	Pro	
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aag	aat	gcc	gct	gtc	atg	ctg	tgg	atc	ttt	ggg	ggt	ggc	ttc	tac	tcc	335
Lys	Asn	Ala	Ala	Val	Met	Leu	Trp	Ile	Phe	Gly	Gly	Gly	Phe	Tyr	Ser	
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Gly	Thr	Ala	Thr	Leu	Asp	Val	Tyr	Asp	His	Arg	Thr	Leu	Ala	Ser	Glu	
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gag	aac	gtg	atc	gtg	gtt	tcg	ctg	cag	tac	cgt	gtc	gca	agt	ctt	ggt	431
Glu	Asn	Val	Ile	Val	Val	Ser	Leu	Gln	Tyr	Arg	Val	Ala	Ser	Leu	Gly	
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Phe	Leu	Phe	Leu	Gly												
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Asp	Ala	Trp	Met	Gly	Ile	Pro	Tyr	Ala	Gln	Pro	Pro	Leu	Gly	Pro	Leu	
			20					25					30			
cgg	ttt	cga	cat	ccg	cga	ccc	gcc	gaa	aga	tgg	acc	ggt	gtg	ctg	aac	144
Arg	Phe	Arg	His	Pro	Arg	Pro	Ala	Glu	Arg	Trp	Thr	Gly	Val	Leu	Asn	
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gcg	acc	aaa	ccg	ccc	aac	tcc	tgc	gtc	cag	atc	gtg	gac	acc	gtg	ttc	192
Ala	Thr	Lys	Pro	Pro	Asn	Ser	Cys	Val	Gln	Ile	Val	Asp	Thr	Val	Phe	
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ggt	gac	ttc	ccg	ggg	gcc	acc	atg	tgg	aac	ccg	aac	aca	ccg	ctc	tcg	240
Gly	Asp	Phe	Pro	Gly	Ala	Thr	Met	Trp	Asn	Pro	Asn	Thr	Pro	Leu	Ser	
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Glu	Asp	Cys	Leu	Tyr	Ile	Asn	Val	Val	Val	Pro	Arg	Pro	Arg	Pro	Lys	
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aat	gcc	gcc	gtc	atg	ctg	tgg	atc	ttc	ggg	ggt	agc	ttc	tac	tcc	ggg	336
Asn	Ala	Ala	Val	Met	Leu	Trp	Ile	Phe	Gly	Gly	Ser	Phe	Tyr	Ser	Gly	
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act	gcc	acg	ctg	gac	gtg	tac	gac	cac	cgg	acg	ctg	gcc	tcg	gag	gag	384
Thr	Ala	Thr	Leu	Asp	Val	Tyr	Asp	His	Arg	Thr	Leu	Ala	Ser	Glu	Glu	
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aac	gtg	atc	gta	gtt	tcg	ctg	cag	tac	cgt	gtc	gca	agt	ctt	ggt	ttt	432

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Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu Gly Phe
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 <211> 447
 <212> DNA
 <213> Culex pipiens quinquefasciatus strain DJI (R)

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 <222> (1)..(444)

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 gac gca tgg atg ggc att ccg tac gcg cag cct ccg ctg ggt ccg ctc 96
 Asp Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro Pro Leu Gly Pro Leu
 20 25 30
 cgg ttt cga cat ccg cga ccc gcc gaa aga tgg acc ggt gtg ctg aac 144
 Arg Phe Arg His Pro Arg Pro Ala Glu Arg Trp Thr Gly Val Leu Asn
 35 40 45
 gcg acc aaa ccg ccc aac tcc tgc gtc cag atc gtg gac acc gtg ttc 192
 Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile Val Asp Thr Val Phe
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 Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro Leu Ser
 65 70 75 80
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 Glu Asp Cys Leu Tyr Ile Asn Val Val Val Pro Arg Pro Arg Pro Lys
 85 90 95
 aat gcc gcc gtc atg ctg tgg atc ttc ggg ggt agc ttc tac tcc ggg 336
 Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly Ser Phe Tyr Ser Gly
 100 105 110
 act gcc acg ctg gac gtg tac gac cac cgg acg ctg gcc tcg gag gag 384
 Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr Leu Ala Ser Glu Glu
 115 120 125
 aac gtg atc gta gtt tcg ctg cag tac cgt gtc gca agt ctt ggt ttt 432
 Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu Gly Phe
 130 135 140

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 Leu Phe Leu Gly
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Asp	Ala	Trp	Met	Gly	Ile	Pro	Tyr	Ala	Gln	Pro	Pro	Leu	Gly	Pro	Leu	
			20					25					30			
cgg	ttt	cga	cat	ccg	cga	ccc	gcc	gaa	aga	tgg	acc	ggt	gtg	ctg	aac	144
Arg	Phe	Arg	His	Pro	Arg	Pro	Ala	Glu	Arg	Trp	Thr	Gly	Val	Leu	Asn	
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gcg	acc	aaa	ccg	ccc	aac	tcc	tgc	gtc	cag	atc	gtg	gac	acc	gtg	ttc	192
Ala	Thr	Lys	Pro	Pro	Asn	Ser	Cys	Val	Gln	Ile	Val	Asp	Thr	Val	Phe	
	50					55					60					
ggt	gac	ttc	ccg	ggg	gcc	acc	atg	tgg	aac	ccg	aac	aca	ccg	ctc	tcg	240
Gly	Asp	Phe	Pro	Gly	Ala	Thr	Met	Trp	Asn	Pro	Asn	Thr	Pro	Leu	Ser	
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Glu	Asp	Cys	Leu	Tyr	Ile	Asn	Val	Val	Val	Pro	Arg	Pro	Arg	Pro	Lys	
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aat	gcc	gcc	gtc	atg	ctg	tgg	atc	ttc	ggg	ggt	agc	ttc	tac	tcc	ggg	336
Asn	Ala	Ala	Val	Met	Leu	Trp	Ile	Phe	Gly	Gly	Ser	Phe	Tyr	Ser	Gly	
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Thr	Ala	Thr	Leu	Asp	Val	Tyr	Asp	His	Arg	Thr	Leu	Ala	Ser	Glu	Glu	
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Asn	Val	Ile	Val	Val	Ser	Leu	Gln	Tyr	Arg	Val	Ala	Ser	Leu	Gly	Phe	
	130					135					140					
ctc	ttc	ctg	ggc	aca	ccg	gag	gca	c								457
Leu	Phe	Leu	Gly	Thr	Pro	Glu	Ala									
145					150											

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<211> 458

<212> DNA

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<220>

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<222> (1)..(456)

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Asp	Ala	Trp	Met	Gly	Ile	Pro	Tyr	Ala	Gln	Pro	Pro	Leu	Gly	Pro	Leu	
			20					25					30			
cgg	ttt	cga	cat	ccg	cga	ccc	gcc	gaa	aga	tgg	acc	ggt	gtg	ctg	aac	144
Arg	Phe	Arg	His	Pro	Arg	Pro	Ala	Glu	Arg	Trp	Thr	Gly	Val	Leu	Asn	
		35					40					45				
gcg	acc	aaa	ccg	ccc	aac	tcc	tgc	gtc	cag	atc	gtg	gac	acc	gtg	ttc	192
Ala	Thr	Lys	Pro	Pro	Asn	Ser	Cys	Val	Gln	Ile	Val	Asp	Thr	Val	Phe	
	50					55					60					
ggt	gac	ttc	ccg	ggg	gcc	acc	atg	tgg	aac	ccg	aac	aca	ccg	ctc	tcg	240
Gly	Asp	Phe	Pro	Gly	Ala	Thr	Met	Trp	Asn	Pro	Asn	Thr	Pro	Leu	Ser	
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Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly Ser Phe Tyr Ser Gly 110	
act gcc acg ctg gac gtg tac gac cac cgg acg ctg gcc tcg gag gag	384
Thr Ala Thr 115 Leu Asp Val Tyr Asp His Arg Thr Leu Ala Ser Glu Glu 125	
aac gtg atc gta gtt tcg ctg cag tac cgt gtc gca agt ctt ggt ttt	432
Asn Val 130 Ile Val Val Ser Leu 135 Gln Tyr Arg Val Ala 140 Ser Leu Gly Phe	
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Val Asp Ala Trp Met 20 Gly Ile Pro Tyr Ala 25 Gln Pro Pro Leu Gly 30 Pro	
ctc cgg ttt cga cat ccg cga ccc gcc gaa aga tgg acc ggt gtg ctg	143
Leu Arg Phe Arg 35 His Pro Arg Pro Ala 40 Glu Arg Trp Thr Gly 45 Val Leu	
aac gcg acc aaa cca ccc aac tcc tgc gtc cag atc gtg gac acc gtg	191
Asn Ala Thr 50 Lys Pro Pro Asn Ser 55 Cys Val Gln Ile Val 60 Asp Thr Val	
ttc ggt gac ttc ccg ggg gcc acc atg tgg aac ccg aac aca ccc ctc	239
Phe Gly 65 Asp Phe Pro Gly Ala 70 Thr Met Trp Asn Pro 75 Asn Thr Pro Leu	
tcg gag gac tgt ctg tac atc aac gtg gtc gtg cca agg ccg agg ccc	287
Ser Glu Asp Cys Leu Tyr 85 Ile Asn Val Val Val 90 Pro Arg Pro Arg Pro 95	
aag aat gcc gct gtc atg ctg tgg atc ttt ggg ggt agc ttc tac tcc	335
Lys Asn Ala Ala 100 Val Met Leu Trp Ile Phe Gly Gly Ser Phe Tyr Ser 110	
ggg act gcc acg ttg gac gtg tac gat cat cgg acg ctg gcc tcg gag	383
Gly Thr Ala Thr 115 Leu Asp Val Tyr Asp His Arg Thr Leu Ala 125 Ser Glu	
gag aac gtg atc gtg gtt tcg ctg cag tac cgt gtc gca agt ctt ggt	431
Glu Asn Val 130 Ile Val Val Ser Leu 135 Gln Tyr Arg Val Ala 140 Ser Leu Gly	
ttt ctc ttc ctg ggc a	447

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Phe Leu Phe Leu Gly
145

<210> 72
<211> 447
<212> DNA
<213> Culex pipiens pipiens strain Bleuet (S)

<220>
<221> CDS
<222> (3)..(446)

<400> 72
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Gly Lys Ile Arg Gly Thr Thr Leu Glu Ala Pro Ser Gly Lys Lys
1 5 10 15

gtg gac gca tgg atg ggc att ccg tac gcg cag ccc ccg ctg ggt ccg 95
Val Asp Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro Pro Leu Gly Pro
20 25 30

ctc cgg ttt cga cat ccg cga ccc gcc gaa aga tgg acc ggt gtg ctg 143
Leu Arg Phe Arg His Pro Arg Pro Ala Glu Arg Trp Thr Gly Val Leu
35 40 45

aac gcg acc aaa cca ccc aac tcc tgc gtc cag atc gtg gac acc gtg 191
Asn Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile Val Asp Thr Val
50 55 60

ttc ggt gac ttc ccg ggg gcc acc atg tgg aac ccg aac aca ccc ctc 239
Phe Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro Leu
65 70 75

tcg gag gac tgt ctg tac atc aac gtg gtc gtg cca agg ccg agg ccc 287
Ser Glu Asp Cys Leu Tyr Ile Asn Val Val Val Pro Arg Pro Arg Pro
80 85 90 95

aag aat gcc gct gtc atg ctg tgg atc ttt ggg ggt ggc ttc tac tcc 335
Lys Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly Gly Phe Tyr Ser
100 105 110

ggg act gcc acg ttg gac gtg tac gat cat cgg acg ctg gcc tcg gag 383
Gly Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr Leu Ala Ser Glu
115 120 125

gag aac gtg atc gtg gtt tcg ctg cag tac cgt gtc gca agt ctt ggt 431
Glu Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu Gly
130 135 140

ttt ctc ttc ctg ggc a 447
Phe Leu Phe Leu Gly
145

<210> 73
<211> 448
<212> DNA
<213> Culex pipiens pipiens strain Bruges B (S)

<220>
<221> CDS
<222> (3)..(446)

<400> 73
ag ggc aaa atc cgt gga acg aca ctg gaa gcg cca agt gga aag aag 47
Gly Lys Ile Arg Gly Thr Thr Leu Glu Ala Pro Ser Gly Lys Lys
1 5 10 15

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gtg gac gca tgg atg ggc att ccg tac gcg cag ccc ccg ctg ggt ccg	95
Val Asp Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro Pro Leu Gly Pro	
	20 25 30
ctc cgg ttt cga cat ccg cga ccc gcc gaa aga tgg acc ggt gtg ctg	143
Leu Arg Phe Arg His Pro Arg Pro Ala Glu Arg Trp Thr Gly Val Leu	
	35 40 45
aac gcg acc aaa cca ccc aac tcc tgc gtc cag atc gtg gac acc gtg	191
Asn Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile Val Asp Thr Val	
	50 55 60
ttc ggt gac ttc ccg ggg gcc acc atg tgg aac ccg aac aca ccc ctc	239
Phe Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro Leu	
	65 70 75
tcg gag gac tgt ctg tac atc aac gtg gtc gtg cca agg ccg agg ccc	287
Ser Glu Asp Cys Leu Tyr Ile Asn Val Val Val Pro Arg Pro Arg Pro	
	80 85 90 95
aag aat gcc gct gtc atg ctg tgg atc ttt ggg ggt ggc ttc tac tcc	335
Lys Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly Gly Phe Tyr Ser	
	100 105 110
ggg act gcc acg ttg gac gtg tac gat cat cgg acg ctg gcc tcg gag	383
Gly Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr Leu Ala Ser Glu	
	115 120 125
gag aac gtg atc gtg gtt tcg ctg cag tac cgt gtc gca agt ctt ggt	431
Glu Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu Gly	
	130 135 140
ttt ctc ttc ctg ggc ac	448
Phe Leu Phe Leu Gly	
	145

<210> 74

<211> 447

<212> DNA

<213> Culex pipiens pipiens strain Heteren (S)

<220>

<221> CDS

<222> (3)..(446)

<400> 74

ag ggc aaa atc cgt gga acg aca ctg gaa gcg cca agt gga aag aag	47
Gly Lys Ile Arg Gly Thr Thr Leu Glu Ala Pro Ser Gly Lys Lys	
	1 5 10 15
gtg gac gca tgg atg ggc att ccg tac gcg cag ccc ccg ctg ggt ccg	95
Val Asp Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro Pro Leu Gly Pro	
	20 25 30
ctc cgg ttt cga cat cca cga ccc gcc gaa aga tgg acc ggt gtg ctg	143
Leu Arg Phe Arg His Pro Arg Pro Ala Glu Arg Trp Thr Gly Val Leu	
	35 40 45
aac gcg acc aaa cca ccc aac tcc tgc gtc cag atc gtg gac aca gtg	191
Asn Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile Val Asp Thr Val	
	50 55 60
ttc ggt gac ttc ccg ggg gcc acc atg tgg aac ccg aac aca ccc ctc	239
Phe Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro Leu	
	65 70 75
tcg gag gac tgt ctg tac atc aac gtg gtc gtg cca agg ccg agg ccc	287

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Ser	Glu	Asp	Cys	Leu	Tyr	Ile	Asn	Val	Val	Val	Pro	Arg	Pro	Arg	Pro		
80					85				90						95		
aag	aat	gcc	gct	gtc	atg	ctg	tgg	atc	ttt	ggg	ggt	ggc	ttc	tac	tcc	335	
Lys	Asn	Ala	Ala	Val	Met	Leu	Trp	Ile	Phe	Gly	Gly	Gly	Phe	Tyr	Ser		
				100					105					110			
ggg	act	gcc	acg	ttg	gac	gtg	tac	gac	cat	cgg	acg	ctg	gcc	tcg	gaa	383	
Gly	Thr	Ala	Thr	Leu	Asp	Val	Tyr	Asp	His	Arg	Thr	Leu	Ala	Ser	Glu		
			115					120					125				
gag	aac	gtg	atc	gtg	gtt	tcg	ctg	cag	tac	cgt	gtc	gca	agt	ctt	ggt	431	
Glu	Asn	Val	Ile	Val	Val	Ser	Leu	Gln	Tyr	Arg	Val	Ala	Ser	Leu	Gly		
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ttt	ctc	ttc	ctg	ggc	a											447	
Phe	Leu	Phe	Leu	Gly													
			145														
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<211> 450																	
<212> DNA																	
<213> Culex pipiens quinquefasciatus strain Ling (S)																	
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<221> CDS																	
<222> (1)..(447)																	
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cag	ggc	aaa	atc	cgt	gga	acg	aca	ctg	gaa	gcg	cct	agt	gga	aag	aag	48	
Gln	Gly	Lys	Ile	Arg	Gly	Thr	Thr	Leu	Glu	Ala	Pro	Ser	Gly	Lys	Lys		
				5					10					15			
gtg	gac	gcc	tgg	atg	ggc	att	ccg	tac	gcg	cag	ccc	ccg	ctg	ggt	ccg	96	
Val	Asp	Ala	Trp	Met	Gly	Ile	Pro	Tyr	Ala	Gln	Pro	Pro	Leu	Gly	Pro		
			20					25					30				
ctc	cgg	ttt	cga	cat	ccg	cga	ccc	gcc	gaa	aga	tgg	acc	ggt	gtg	ctg	144	
Leu	Arg	Phe	Arg	His	Pro	Arg	Pro	Ala	Glu	Arg	Trp	Thr	Gly	Val	Leu		
		35					40					45					
aac	gcg	acc	aaa	ccg	ccc	aac	tcc	tgc	gtc	cag	atc	gtg	gac	acc	gtg	192	
Asn	Ala	Thr	Lys	Pro	Pro	Asn	Ser	Cys	Val	Gln	Ile	Val	Asp	Thr	Val		
		50				55					60						
ttc	ggt	gac	ttc	ccg	ggg	gcc	acc	atg	tgg	aac	ccg	aac	aca	ccg	ctc	240	
Phe	Gly	Asp	Phe	Pro	Gly	Ala	Thr	Met	Trp	Asn	Pro	Asn	Thr	Pro	Leu		
		65			70					75					80		
tcg	gag	gac	tgt	ctg	tac	atc	aac	gtg	gtc	gtg	cca	cgg	ccc	agg	ccc	288	
Ser	Glu	Asp	Cys	Leu	Tyr	Ile	Asn	Val	Val	Val	Pro	Arg	Pro	Arg	Pro		
				85					90					95			
aag	aat	gcc	gcc	gtc	atg	ctg	tgg	atc	ttc	ggg	ggt	ggc	ttc	tac	tcc	336	
Lys	Asn	Ala	Ala	Val	Met	Leu	Trp	Ile	Phe	Gly	Gly	Gly	Phe	Tyr	Ser		
			100					105					110				
ggg	act	gcc	acg	ctg	gac	gtg	tat	gac	cac	cgg	acg	ctg	gcc	tcg	gag	384	
Gly	Thr	Ala	Thr	Leu	Asp	Val	Tyr	Asp	His	Arg	Thr	Leu	Ala	Ser	Glu		
			115				120					125					
gag	aac	gtg	atc	gta	gtt	tcg	ctg	cag	tac	cgt	gtc	gca	agt	ctt	ggt	432	
Glu	Asn	Val	Ile	Val	Val	Ser	Leu	Gln	Tyr	Arg	Val	Ala	Ser	Leu	Gly		
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ttt	ctc	ttc	ctg	ggc	aca											450	
Phe	Leu	Phe	Leu	Gly													

145

<210> 76
 <211> 448
 <212> DNA
 <213> Culex pipiens quinquefasciatus strain Mao (S)

<220>
 <221> CDS
 <222> (3)..(446)

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 1 5 10 15
 gtg gac gca tgg atg ggc att ccg tac gcg cag ccc ccg ctg ggt ccg 95
 Val Asp Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro Pro Leu Gly Pro
 20 25 30
 ctc cgg ttt cga cat ccg cga ccc gcc gaa aga tgg acc ggt gtg ctg 143
 Leu Arg Phe Arg His Pro Arg Pro Ala Glu Arg Trp Thr Gly Val Leu
 35 40 45
 aac gcg acc aaa ccg ccc aac tcc tgc gtc cag atc gtg gac acc gtg 191
 Asn Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile Val Asp Thr Val
 50 55 60
 ttc ggt gac ttc ccg ggg gcc acc atg tgg aac ccg aac aca ccg ctc 239
 Phe Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro Leu
 65 70 75
 tcg gag gac tgt ctg tac atc aac gtg gtc gtg cca cgg ccc agg ccc 287
 Ser Glu Asp Cys Leu Tyr Ile Asn Val Val Val Pro Arg Pro Arg Pro
 80 85 90 95
 aag aat gcc gcc gtc atg ctg tgg atc ttc ggg ggt ggc ttc tac tcc 335
 Lys Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly Gly Phe Tyr Ser
 100 105 110
 ggg act gcc acg ctg gac gtg tac gac cac cgg acg ctg gcc tcg gag 383
 Gly Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr Leu Ala Ser Glu
 115 120 125
 gag aac gtg atc gta gtt tcg ctg cag tac cgt gtc gca agt ctt ggt 431
 Glu Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu Gly
 130 135 140
 ttt ctc ttc ctg ggc ac 448
 Phe Leu Phe Leu Gly
 145

<210> 77
 <211> 433
 <212> DNA
 <213> Culex pipiens quinquefasciatus strain TemR (S)

<220>
 <221> CDS
 <222> (1)..(432)

<400> 77
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 Lys Ile Arg Gly Thr Thr Leu Glu Ala Pro Ser Gly Lys Lys Val Asp
 1 5 10 15
 gca tgg atg ggc att ccg tac gcg cag cct ccg ctg ggt ccg ctc ccg 96
 Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro Pro Leu Gly Pro Leu Arg
 50

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20

25

30

ttt	cga	cat	ccg	cga	ccc	gcc	gaa	aga	tgg	acc	ggt	gtg	ctg	aac	gcg	144
Phe	Arg	His	Pro	Arg	Pro	Ala	Glu	Arg	Trp	Thr	Gly	Val	Leu	Asn	Ala	
		35					40					45				
acc	aaa	cca	ccc	aac	tcc	tgc	gtc	cag	atc	gtg	gac	acc	gtg	ttc	ggt	192
Thr	Lys	Pro	Pro	Asn	Ser	Cys	Val	Gln	Ile	Val	Asp	Thr	Val	Phe	Gly	
	50					55					60					
gac	ttc	ccg	ggg	gcc	acc	atg	tgg	aac	ccg	aac	aca	ccg	ctc	tcg	gag	240
Asp	Phe	Pro	Gly	Ala	Thr	Met	Trp	Asn	Pro	Asn	Thr	Pro	Leu	Ser	Glu	
65					70					75					80	
gac	tgt	ctg	tac	atc	aac	gtg	gtc	gtg	cca	cgg	ccc	agg	ccc	aag	aat	288
Asp	Cys	Leu	Tyr	Ile	Asn	Val	Val	Val	Pro	Arg	Pro	Arg	Pro	Lys	Asn	
				85					90					95		
gcc	gcc	gtc	atg	ctg	tgg	atc	ttc	ggg	ggt	ggc	ttc	tac	tcc	ggg	act	336
Ala	Ala	Val	Met	Leu	Trp	Ile	Phe	Gly	Gly	Gly	Phe	Tyr	Ser	Gly	Thr	
			100					105					110			
gcc	acg	ctg	gac	gtg	tac	gac	cac	cgg	acg	ctg	acc	tcg	gag	gag	aac	384
Ala	Thr	Leu	Asp	Val	Tyr	Asp	His	Arg	Thr	Leu	Thr	Ser	Glu	Glu	Asn	
		115					120					125				
gtg	atc	gta	gtt	tcg	ctg	cag	tac	cgt	gtc	gca	agt	ctt	ggt	ttt	ctc	t 433
Val	Ile	Val	Val	Ser	Leu	Gln	Tyr	Arg	Val	Ala	Ser	Leu	Gly	Phe	Leu	
	130					135					140					

<210> 78

<211> 448

<212> DNA

<213> Culex torrentium strain Uppsala

<220>

<221> CDS

<222> (3)..(446)

<400> 78

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1				5				10					15			
gtg	gac	gca	tgg	atg	ggc	att	ccg	tac	gcg	cag	cct	ccg	ctg	ggt	ccg	95
Val	Asp	Ala	Trp	Met	Gly	Ile	Pro	Tyr	Ala	Gln	Pro	Pro	Leu	Gly	Pro	
			20					25					30			
ctt	cgg	ttt	cga	cat	cca	cga	ccc	gcc	gaa	aga	tgg	acc	ggt	gtg	ctg	143
Leu	Arg	Phe	Arg	His	Pro	Arg	Pro	Ala	Glu	Arg	Trp	Thr	Gly	Val	Leu	
			35					40					45			
aac	gcg	acc	aaa	cca	ccc	aac	tcc	tgc	gtc	cag	atc	gtc	gac	acc	gtg	191
Asn	Ala	Thr	Lys	Pro	Pro	Asn	Ser	Cys	Val	Gln	Ile	Val	Asp	Thr	Val	
		50					55					60				
ttc	ggt	gac	ttc	ccg	ggg	gcc	acc	atg	tgg	aac	ccg	aac	aca	ccc	ctc	239
Phe	Gly	Asp	Phe	Pro	Gly	Ala	Thr	Met	Trp	Asn	Pro	Asn	Thr	Pro	Leu	
	65					70					75					
tcg	gaa	gac	tgt	ctg	tac	atc	aac	gtt	gtg	gtg	cca	cgg	ccg	agg	ccc	287
Ser	Glu	Asp	Cys	Leu	Tyr	Ile	Asn	Val	Val	Val	Pro	Arg	Pro	Arg	Pro	
80					85				90					95		
aag	aat	gcc	gcc	gtc	atg	ctg	tgg	atc	ttc	ggg	ggt	gga	ttc	tac	tcc	335
Lys	Asn	Ala	Ala	Val	Met	Leu	Trp	Ile	Phe	Gly	Gly	Gly	Phe	Tyr	Ser	
				100					105					110		

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ggg acc gcc acg ctg gac gtg tac gac cac cgg acg ctg gcc tcg gag 383
Gly Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr Leu Ala Ser Glu
115 120 125

gag aac gtg atc gtg gtt tcg ctg cag tac cgt gtc gca agt ctt ggt 431
Glu Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu Gly
130 135 140

ttt ctc ttc ctg ggc ac 448
Phe Leu Phe Leu Gly
145

<210> 79
<211> 448
<212> DNA
<213> Culex pipiens quinquefasciatus strain Trans (S)

<220>
<221> CDS

<222> (3)..(446)

<400> 79
ag ggc aaa atc cgt gga acg aca ctg gaa gcg cct agt gga aag aag 47
Gly Lys Ile Arg Gly Thr Thr Leu Glu Ala Pro Ser Gly Lys Lys
1 5 10 15

gtg gac gca tgg atg ggc att ccg tac gcg cag cct ccg ctg ggt ccg 95
Val Asp Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro Pro Leu Gly Pro
20 25 30

ctc cgg ttt cga cat ccg cga ccc gcc gaa aga tgg acc ggt gtg ctg 143
Leu Arg Phe Arg His Pro Arg Pro Ala Glu Arg Trp Thr Gly Val Leu
35 40 45

aac gcg acc aaa cca ccc aac tcc tgc gtc cag atc gtg gac acc gtg 191
Asn Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile Val Asp Thr Val
50 55 60

ttc ggt gac ttc ccg ggg gcc acc atg tgg aac ccg aac aca ccg ctc 239
Phe Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro Leu
65 70 75

tcg gag gac tgt ctg tac atc aac gtg gtc gtg cca cgg ccc agg ccc 287
Ser Glu Asp Cys Leu Tyr Ile Asn Val Val Val Pro Arg Pro Arg Pro
80 85 90 95

aag aat gcc gcc gtc atg ctg tgg atc ttc ggg ggt ggc ttc tac tcc 335
Lys Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly Gly Phe Tyr Ser
100 105 110

ggg act gcc acg ctg gac gtg tac gac cac cgg acg ctg acc tcg gag 383
Gly Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr Leu Thr Ser Glu
115 120 125

gag aac gtg atc gta gtt tcg ctg cag tac cgt gtc gca agt ctt ggt 431
Glu Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu Gly
130 135 140

ttt ctc ttc ctg ggc ac 448
Phe Leu Phe Leu Gly
145

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<210> 80
<211> 412
<212> DNA
<213> Culex pipiens quinquefasciatus strain BED (S)
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<220>

<221> CDS

<222> (1)..(411)

<400> 80

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Thr Leu Glu Ala Pro Ser Gly Lys Lys Val Asp Ala Trp Met Gly Ile
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ccg tac gcg cag cct ccg ctg ggt ccg ctc cgg ttt cga cat ccg cga   96
Pro Tyr Ala Gln Pro Pro Leu Gly Pro Leu Arg Phe Arg His Pro Arg
                               20                               25                               30

ccc gcc gaa aga tgg acc ggt gtg ctg aac gcg acc aaa cca ccc aac   144
Pro Ala Glu Arg Trp Thr Gly Val Leu Asn Ala Thr Lys Pro Pro Asn
                               35                               40                               45

tcc tgc gtc cag atc gtg gac acc gtg ttc ggt gac ttc ccg ggg gcc   192
Ser Cys Val Gln Ile Val Asp Thr Val Phe Gly Asp Phe Pro Gly Ala
                               50                               55                               60

acc atg tgg aac ccg aac aca ccg ctc tcg gag gac tgt ctg tac atc   240
Thr Met Trp Asn Pro Asn Thr Pro Leu Ser Glu Asp Cys Leu Tyr Ile
  65                               70                               75                               80

aac gtg gtc gtg cca cgg ccc agg ccc aag aat gcc gcc gtc atg ctg   288
Asn Val Val Val Pro Arg Pro Arg Pro Lys Asn Ala Ala Val Met Leu
                               85                               90                               95

tgg atc ttc ggg ggt ggc ttc tac tcc ggg act gcc acg ctg gac gtg   336
Trp Ile Phe Gly Gly Gly Phe Tyr Ser Gly Thr Ala Thr Leu Asp Val
                               100                              105                              110

tac gac cac cgg acg ctg gcc tcg gag gag aac gtg atc gta gtt tcg   384
Tyr Asp His Arg Thr Leu Ala Ser Glu Glu Asn Val Ile Val Val Ser
                               115                              120                              125

ctg cag tac cgt gtc gca agt ctt ggt t
Leu Gln Tyr Arg Val Ala Ser Leu Gly
  130                               135

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<210> 81

<211> 437

<212> DNA

<213> Culex pipiens quinquefasciatus strain BSQ (S)

<220>

<221> CDS

<222> (3)..(434)

<400> 81

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gtg gac gcc tgg atg ggc att ccg tac gcg cag ccc ccg ctg ggt ccg   95
Val Asp Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro Pro Leu Gly Pro
                               20                               25                               30

ctc cgg ttt cga cat ccg cga ccc gcc gaa aga tgg acc ggt gtg ctg   143
Leu Arg Phe Arg His Pro Arg Pro Ala Glu Arg Trp Thr Gly Val Leu
                               35                               40                               45

aac gcg acc aaa ccg ccc aac tcc tgc gtc cag atc gtg gac acc gtg   191
Asn Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile Val Asp Thr Val
  50                               55                               60

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Phe Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro Leu	
65 70 75	
tcg gag gac tgt ctg tac atc aac gtg gtc gtg cca cgg ccc agg ccc	287
Ser Glu Asp Cys Leu Tyr Ile Asn Val Val Val Pro Arg Pro Arg Pro	
80 85 90 95	
aag aat gcc gcc gtc atg ctg tgg atc ttc ggg ggt ggc ttc tac tcc	335
Lys Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly Gly Phe Tyr Ser	
100 105 110	
ggg act gcc acg ctg gac gtg tac gac cac cgg acg ctg gcc tcg gag	383
Gly Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr Leu Ala Ser Glu	
115 120 125	
gag aac gtg atc gta gtt tcg ctg cag tac cgt gtc gca agt ctt ggg	431
Glu Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu Gly	
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Phe	
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<211> 414	
<212> DNA	
<213> Culex pipiens quinquefasciatus strain Brazza (S)	
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<222> (2)..(412)	
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Leu Glu Ala Pro Ser Gly Lys Lys Val Asp Ala Trp Met Gly Ile Pro	
1 5 10 15	
tac gcg cag ccc ccg ctg ggt ccg ctc cgg ttt cga cat ccg cga ccc	97
Tyr Ala Gln Pro Pro Leu Gly Pro Leu Arg Phe Arg His Pro Arg Pro	
20 25 30	
gcc gaa aga tgg acc ggt gtg ctg aac gcg acc aaa ccg ccc aac tcc	145
Ala Glu Arg Trp Thr Gly Val Leu Asn Ala Thr Lys Pro Pro Asn Ser	
35 40 45	
tgc gtc cag atc gtg gac acc gtg ttc ggt gac ttc ccg ggg gcc acc	193
Cys Val Gln Ile Val Asp Thr Val Phe Gly Asp Phe Pro Gly Ala Thr	
50 55 60	
atg tgg aac ccg aac aca ccg ctc tcg gag gac tgt ctg tac atc aac	241
Met Trp Asn Pro Asn Thr Pro Leu Ser Glu Asp Cys Leu Tyr Ile Asn	
65 70 75 80	
gtg gtc gtg cca cgg ccc agg ccc aag aat gcc gcc gtc atg ctg tgg	289
Val Val Val Pro Arg Pro Arg Pro Lys Asn Ala Ala Val Met Leu Trp	
85 90 95	
atc ttc ggg ggt ggc ttc tac tcc ggg act gcc acg ctg gac gtg tac	337
Ile Phe Gly Gly Gly Phe Tyr Ser Gly Thr Ala Thr Leu Asp Val Tyr	
100 105 110	
gac cac cgg acg ctg gcc tcg gag gag aac gtg atc gta gtt tcg ctg	385
Asp His Arg Thr Leu Ala Ser Glu Glu Asn Val Ile Val Val Ser Leu	
115 120 125	
cag tac cgt gtc gca agt ctt ggg ttt ct	414
Gln Tyr Arg Val Ala Ser Leu Gly Phe	
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<210> 83
 <211> 437
 <212> DNA
 <213> Culex pipiens quinquefasciatus strain Bouake (R)

<220>
 <221> CDS
 <222> (3)..(434)

<400> 83

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    1          5          10
gtg gac gca tgg atg ggc att ccg tac gcg cag ccc ccg ctg ggt ccg      95
Val Asp Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro Pro Leu Gly Pro
          20          25          30
ctc cgg ttt cga cat ccg cga ccc gcc gaa aga tgg acc ggt gtg ctg      143
Leu Arg Phe Arg His Pro Arg Pro Ala Glu Arg Trp Thr Gly Val Leu
          35          40          45
aac gcg acc aaa ccg ccc aac tcc tgc gtc cag atc gtg gac acc gtg      191
Asn Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile Val Asp Thr Val
          50          55          60
ttc ggt gac ttc ccg ggg gcc acc atg tgg aac ccg aac aca ccg ctc      239
Phe Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro Leu
          65          70          75
tcg gag gac tgt ctg tac atc aac gtg gtc gtg cca cgg ccc agg ccc      287
Ser Glu Asp Cys Leu Tyr Ile Asn Val Val Val Pro Arg Pro Arg Pro
          80          85          90          95
aag aat gcc gcc gtc atg ctg tgg atc ttc ggg ggt ggc ttc tac tcc      335
Lys Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly Gly Phe Tyr Ser
          100          105          110
ggg act gcc acg ctg gac gtg tac gac cac cgg acg ctg gcc tcg gag      383
Gly Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr Leu Ala Ser Glu
          115          120          125
gag aac gtg atc gta gtt tcg ctg cag tac cgt gtc gca agt ctt ggt      431
Glu Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu Gly
          130          135          140
ttt ctc
Phe
  
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437

<210> 84
 <211> 416
 <212> DNA
 <213> Culex pipiens quinquefasciatus strain Thai (S)

<220>
 <221> CDS
 <222> (1)..(414)

<400> 84

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aca ctg gaa gcg cct agt gga aag aag gtg gac gcc tgg atg ggc att      48
Thr Leu Glu Ala Pro Ser Gly Lys Lys Val Asp Ala Trp Met Gly Ile
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ccg tac gcg cag ccc ccg ctg ggt ccg ctc cgg ttt cga cat ccg cga      96
Pro Tyr Ala Gln Pro Pro Leu Gly Pro Leu Arg Phe Arg His Pro Arg
          20          25          30
  
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ccc gcc gaa aga tgg acc ggt gtg ctg aac gcg acc aaa ccg ccc aac 144
Pro Ala Glu Arg Trp Thr Gly Val Leu Asn Ala Thr Lys Pro Pro Asn
35 40 45

tcc tgc gtc cag atc gtg gac acc gtg ttc ggt gac ttc ccg ggg gcc 192
Ser Cys Val Gln Ile Val Asp Thr Val Phe Gly Asp Phe Pro Gly Ala
50 55 60

acc atg tgg aac ccg aac aca ccg ctc tcg gag gac tgt ctg tac atc 240
Thr Met Trp Asn Pro Asn Thr Pro Leu Ser Glu Asp Cys Leu Tyr Ile
65 70 75 80

aac gtg gtc gtg cca cgg ccc agg ccc aag aat gcc gcc gtc atg ctg 288
Asn Val Val Val Pro Arg Pro Arg Pro Lys Asn Ala Ala Val Met Leu
85 90 95

tgg	atc	ttc	ggg	ggt	ggc	ttc	tac	tcc	ggg	act	gcc	acg	ctg	gac	gtg	336
Trp	Ile	Phe	Gly	Gly	Gly	Phe	Tyr	Ser	Gly	Thr	Ala	Thr	Leu	Asp	Val	
			100					105					110			

tac	gac	cac	cgg	acg	ctg	gcc	tcg	gag	gag	aac	gtg	atc	gta	ggt	tcg	384
Tyr	Asp	His	Arg	Thr	Leu	Ala	Ser	Glu	Glu	Asn	Val	Ile	Val	Val	Ser	
		115					120					125				

ctg cag tac cgt gtc gca agt ctt ggg ttt ct
Leu Gln Tyr Arg Val Ala Ser Leu Gly Phe 416
130 135

<210> 85

<211> 426

<212> DNA

<213> *Culex pipiens quinquefasciatus* strain Madurai (S)

<220>

<221> CDS

<222> (3) .. (425)

<400> 85

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1 5 10 15

ccg tac gcg cag ccc ccg ctg ggt ccg ctc cgg ttt cga cat ccg cga 95
Pro Tyr Ala Gln Pro Pro Leu Gly Pro Leu Arg Phe Arg His Pro Arg
20 25 30

ccc gcc gaa aga tgg acc ggt gtg ctg aac gca acc aaa ccg ccc aac 143
Pro Ala Glu Arg Trp Thr Gly Val Leu Asn Ala Thr Lys Pro Pro Asn
35 40 45

tcc	tgc	gtc	cag	atc	gtg	gac	acc	gtg	ttc	ggg	gac	ttc	ccg	ggg	gcc	191
Ser	Cys	Val	Gln	Ile	Val	Asp	Thr	Val	Phe	Gly	Asp	Phe	Pro	Gly	Ala	
		50					55					60				

acc atg tgg aac ccg aac aca ccg ctc tcg gag gac tgt ctg tac atc 239
Thr Met Trp Asn Pro Asn Thr Pro Leu Ser Glu Asp Cys Leu Tyr Ile
65 70 75

aac gtg gtc gtg cca cgg ccc agg ccc aag aat gcc gcc gtc atg ctg 287
 Asn Val Val Val Pro Arg Pro Arg Pro Lys Asn Ala Ala Val Met Leu
 80 85 90 95

ggg atc ttc ggg ggt ggc ttc tac tcc ggg act gcc acg ctg gac gtg 335
 rp ile phe gly gly gly phe tyr ser gly thr ala thr leu asp val
 100 105 110

ac gac cac cgg acg ctg gcc tcg gag gag aac gtg atc gta gtt tcg 383
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Tyr Asp His Arg Thr Leu Ala Ser Glu Glu Asn Val Ile Val Val Ser
115 120 125

ctg cag tac cgt gtc gca agt ctt ggg ttt ctc ttc ctg ggc a 426
Leu Gln Tyr Arg Val Ala Ser Leu Gly Phe Leu Phe Leu Gly
130 135 140

<210> 86
<211> 423
<212> DNA
<213> Culex pipiens quinquefasciatus strain Recife (R)

<220>
<221> CDS
<222> (1)..(423)

<400> 86
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1 5 10 15

tac gcg cag cct ccg ctg ggt ccg ctc cgg ttt cga cat ccg cga ccc 96
Tyr Ala Gln Pro Pro Leu Gly Pro Leu Arg Phe Arg His Pro Arg Pro
20 25 30

gcc gaa aga tgg acc ggt gtg ctg aac gcg acc aaa ccg ccc aac tcc 144
Ala Glu Arg Trp Thr Gly Val Leu Asn Ala Thr Lys Pro Pro Asn Ser
35 40 45

tgc gtc cag atc gtg gac acc gtg ttc ggt gac ttc ccg ggg gcc acc 192
Cys Val Gln Ile Val Asp Thr Val Phe Gly Asp Phe Pro Gly Ala Thr
50 55 60

atg tgg aac ccg aac aca ccg ctc tgc gag gac tgt ctg tac atc aac 240
Met Trp Asn Pro Asn Thr Pro Leu Ser Glu Asp Cys Leu Tyr Ile Asn
65 70 75 80

gtg gtc gtg cca ccg ccc agg ccc aag aat gcc gcc gtc atg ctg tgg 288
Val Val Val Pro Arg Pro Arg Pro Lys Asn Ala Ala Val Met Leu Trp
85 90 95

atc ttc ggg ggt agc ttc tac tcc ggg act gcc acg ctg gac gtg tac 336
Ile Phe Gly Gly Ser Phe Tyr Ser Gly Thr Ala Thr Leu Asp Val Tyr
100 105 110

gac cac ccg acg ctg gcc tgc gag gag aac gtg atc gta gtt tcg ctg 384
Asp His Arg Thr Leu Ala Ser Glu Glu Asn Val Ile Val Val Ser Leu
115 120 125

cag tac cgt gtc gca agt ctt ggt ttt ctc ttc ctg ggc 423
Gln Tyr Arg Val Ala Ser Leu Gly Phe Leu Phe Leu Gly
130 135 140

<210> 87
<211> 416
<212> DNA
<213> Culex pipiens quinquefasciatus strain Bresil (S)

<220>
<221> CDS
<222> (3)..(413)

<400> 87
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1 5 10 15

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ccg tac gcg cag ccc ccg ctg ggt ccg ctc cgg ttt cga cat ccg cga	95
Pro Tyr Ala Gln Pro Pro Leu Gly Pro Leu Arg Phe Arg His Pro Arg	
20 25 30	
ccc gcc gaa aga tgg acc ggt gtg ctg aac gcg acc aaa ccg ccc aac	143
Pro Ala Glu Arg Trp Thr Gly Val Leu Asn Ala Thr Lys Pro Pro Asn	
35 40 45	
tcc tgc gtc cag atc gtg gac acc gtg ttc ggt gac ttc ccg ggg gcc	191
Ser Cys Val Gln Ile Val Asp Thr Val Phe Gly Asp Phe Pro Gly Ala	
50 55 60	
acc atg tgg aac ccg aac aca ccg ctc tcg gag gac tgt ctg tac atc	239
Thr Met Trp Asn Pro Asn Thr Pro Leu Ser Glu Asp Cys Leu Tyr Ile	
65 70 75	
aac gtg gtc gtg cca cgg ccc agg ccc aag aat gcc gcc gtc atg ctg	287
Asn Val Val Val Pro Arg Pro Arg Pro Lys Asn Ala Ala Val Met Leu	
80 85 90 95	
tgg atc ttc ggg ggt ggc ttc tat tcc ggg act gcc acg ctg gac gtg	335
Trp Ile Phe Gly Gly Gly Phe Tyr Ser Gly Thr Ala Thr Leu Asp Val	
100 105 110	
tac gac cac cgg acg ctg gcc tcg gag gag aac gtg atc gta gtt tcg	383
Tyr Asp His Arg Thr Leu Ala Ser Glu Glu Asn Val Ile Val Val Ser	
115 120 125	
ctg cag tac cgt gtc gca agt ctt ggg ttt ctc	416
Leu Gln Tyr Arg Val Ala Ser Leu Gly Phe	
130 135	
<210> 88	
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<212> DNA	
<213> Culex pipiens quinquefasciatus strain Moorea (S)	
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<221> CDS	
<222> (1)..(417)	
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Thr Leu Glu Ala Pro Ser Gly Lys Lys Val Asp Ala Trp Met Gly Ile	
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ccg tac gcg cag cct ccg ctg ggt ccg ctc cgg ttt cga cat ccg cga	96
Pro Tyr Ala Gln Pro Pro Leu Gly Pro Leu Arg Phe Arg His Pro Arg	
20 25 30	
ccc gcc gaa aga tgg acc ggt gtg ctg aac gcg acc aaa ccg ccc aac	144
Pro Ala Glu Arg Trp Thr Gly Val Leu Asn Ala Thr Lys Pro Pro Asn	
35 40 45	
tcc tgc gtc cag atc gtg gac acc gtg ttc ggt gac ttc ccg ggg gcc	192
Ser Cys Val Gln Ile Val Asp Thr Val Phe Gly Asp Phe Pro Gly Ala	
50 55 60	
acc atg tgg aac ccg aac aca ccg ctc tcg gag gac tgt ctg tac atc	240
Thr Met Trp Asn Pro Asn Thr Pro Leu Ser Glu Asp Cys Leu Tyr Ile	
65 70 75 80	
aac gtg gtc gtg cca cgg ccc agg ccc aag aat gcc gcc gtc atg ctg	288
Asn Val Val Val Pro Arg Pro Arg Pro Lys Asn Ala Ala Val Met Leu	
85 90 95	
tgg atc ttc ggg ggt ggc ttc tac tcc ggg act gcc acg ctg gac gtg	336
Trp Ile Phe Gly Gly Gly Phe Tyr Ser Gly Thr Ala Thr Leu Asp Val	

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100

105

110

tac gac cac cgg acg ctg gcc tcg gag gag aac gtg atc gta gtt tcg 384
 Tyr Asp His Arg Thr Leu Ala Ser Glu Glu Asn Val Ile Val Val Ser
 115 120 125

ctg cag tac cgt gtc gca agt ctt ggg ttt ctc t 418
 Leu Gln Tyr Arg Val Ala Ser Leu Gly Phe Leu
 130 135

<210> 89

<211> 402

<212> DNA

<213> Culex pipiens pipiens strain killcare (S)

<220>

<221> CDS

<222> (1)..(402)

<400> 89

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 Ser Gly Lys Lys Val Asp Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro
 1 5 10 15

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 Pro Leu Gly Pro Leu Arg Phe Arg His Pro Arg Pro Ala Glu Arg Trp
 20 25 30

acc ggt gtg ctg aac gcg acc aaa cca ccc aac tcc tgc gtc cag atc 144
 Thr Gly Val Leu Asn Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile
 35 40 45

gtg gac aca gtg ttc ggt gac ttc ccg ggg gcc acc atg tgg aac ccg 192
 Val Asp Thr Val Phe Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro
 50 55 60

aac aca ccc ctc tcg gag gac tgt ctg tac atc aac gtg gtc gtg cca 240
 Asn Thr Pro Leu Ser Glu Asp Cys Leu Tyr Ile Asn Val Val Val Pro
 65 70 75 80

agg ccg agg ccc aag aat gcc gct gtc atg ctg tgg atc ttc ggg ggt 288
 Arg Pro Arg Pro Lys Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly
 85 90 95

ggc ttc tac tcc ggg act gcc acg ttg gac gtg tac gat cat cgg acg 336
 Gly Phe Tyr Ser Gly Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr
 100 105 110

ctg gcc tcg gag gag aac gtg atc gtg gtt tcg ctg cag tac cgt gtc 384
 Leu Ala Ser Glu Glu Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val
 115 120 125

gca agt ctt ggt ttt ctc 402
 Ala Ser Leu Gly Phe Leu
 130

<210> 90

<211> 152

<212> PRT

<213> Culex pipiens pipiens strain Espro (R)

<400> 90

Gly Lys Ile Arg Gly Thr Thr Leu Glu Ala Pro Ser Gly Lys Lys Val
 1 5 10 15

Asp Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro Pro Leu Gly Pro Leu
 20 25 30

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Arg Phe Arg His Pro Arg Pro Ala Glu Arg Trp Thr Gly Val Leu Asn
35 40 45

Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile Val Asp Thr Val Phe
50 55 60

Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro Leu Ser
65 70 75 80

Glu Asp Cys Leu Tyr Ile Asn Val Val Val Pro Arg Pro Arg Pro Lys
85 90 95

Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly Ser Phe Tyr Ser Gly
100 105 110

Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr Leu Ala Ser Glu Glu
115 120 125

Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu Gly Phe
130 135 140

Leu Phe Leu Gly Thr Pro Glu Ala
145 150

<210> 91

<211> 152

<212> PRT

<213> Culex pipiens quinquefasciatus strain ProR(S)

<400> 91

Lys Gly Lys Ile Arg Gly Thr Thr Leu Glu Ala Pro Ser Gly Lys Lys
1 5 10 15

Val Asp Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro Pro Leu Gly Pro
20 25 30

Leu Arg Phe Arg His Pro Arg Pro Ala Glu Arg Trp Thr Gly Val Leu
35 40 45

Asn Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile Val Asp Thr Val
50 55 60

Phe Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro Leu
65 70 75 80

Ser Glu Asp Cys Leu Tyr Ile Asn Val Val Val Pro Arg Pro Arg Pro
85 90 95

Lys Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly Gly Phe Tyr Ser
100 105 110

Gly Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr Leu Ala Ser Glu
115 120 125

Glu Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu Gly
130 135 140

Phe Leu Phe Leu Gly Thr Pro Glu
145 150

<210> 92

<211> 148

<212> PRT

<213> Culex pipiens pipiens strain S-LAB (S)

<400> 92

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Gly Lys Ile Arg Gly Thr Thr Leu Glu Ala Pro Ser Gly Lys Lys Val
 1 5 10 15
 Asp Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro Pro Leu Gly Pro Leu
 20 25 30
 Arg Phe Arg His Pro Arg Pro Ala Glu Arg Trp Thr Gly Val Leu Asn
 35 40 45
 Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile Val Asp Thr Val Phe
 50 55 60
 Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro Leu Ser
 65 70 75 80
 Glu Asp Cys Leu Tyr Ile Asn Val Val Val Pro Arg Pro Arg Pro Lys
 85 90 95
 Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly Gly Phe Tyr Ser Gly
 100 105 110
 Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr Leu Ala Ser Glu Glu
 115 120 125
 Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu Gly Phe
 130 135 140
 Leu Phe Leu Gly
 145

<210> 93
 <211> 152
 <212> PRT
 <213> Culex pipiens pipiens strain Padova (R)

<400> 93
 Gly Lys Ile Arg Gly Thr Thr Leu Glu Ala Pro Ser Gly Lys Lys Val
 1 5 10 15
 Asp Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro Pro Leu Gly Pro Leu
 20 25 30
 Arg Phe Arg His Pro Arg Pro Ala Glu Arg Trp Thr Gly Val Leu Asn
 35 40 45
 Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile Val Asp Thr Val Phe
 50 55 60
 Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro Leu Ser
 65 70 75 80
 Glu Asp Cys Leu Tyr Ile Asn Val Val Val Pro Arg Pro Arg Pro Lys
 85 90 95
 Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly Ser Phe Tyr Ser Gly
 100 105 110
 Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr Leu Ala Ser Glu Glu
 115 120 125
 Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu Gly Phe
 130 135 140
 Leu Phe Leu Gly Thr Pro Glu Ala
 145 150

<210> 94
 <211> 154

263365US0XPCT

<212> PRT

<213> Culex pipiens pipiens strain Praias (R)

<400> 94

Asp Lys Gly Lys Ile Arg Gly Thr Thr Leu Glu Ala Pro Ser Gly Lys
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 Lys Val Asp Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro Pro Leu Gly
 20 25 30
 Pro Leu Arg Phe Arg His Pro Arg Pro Ala Glu Arg Trp Thr Gly Val
 35 40 45
 Leu Asn Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile Val Asp Thr
 50 55 60
 Val Phe Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro
 65 70 75 80
 Leu Ser Glu Asp Cys Leu Tyr Ile Asn Val Val Val Pro Arg Pro Arg
 85 90 95
 Pro Lys Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly Ser Phe Tyr
 100 105 110
 Ser Gly Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr Leu Ala Ser
 115 120 125
 Glu Glu Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu
 130 135 140
 Gly Phe Leu Phe Leu Gly Thr Pro Glu Ala
 145 150

<210> 95

<211> 154

<212> PRT

<213> Culex pipiens quinquefasciatus strain Supercar (R)

<400> 95

Asp Lys Gly Lys Ile Arg Gly Thr Thr Leu Glu Ala Pro Ser Gly Lys
 1 5 10 15
 Lys Val Asp Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro Pro Leu Gly
 20 25 30
 Pro Leu Arg Phe Arg His Pro Arg Pro Ala Glu Arg Trp Thr Gly Val
 35 40 45
 Leu Asn Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile Val Asp Thr
 50 55 60
 Val Phe Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro
 65 70 75 80
 Leu Ser Glu Asp Cys Leu Tyr Ile Asn Val Val Val Pro Arg Pro Arg
 85 90 95
 Pro Lys Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly Ser Phe Tyr
 100 105 110
 Ser Gly Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr Leu Ala Ser
 115 120 125
 Glu Glu Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu
 130 135 140
 Gly Phe Leu Phe Leu Gly Thr Pro Glu Ala

145

150

<210> 96

<211> 148

<212> PRT

<213> Culex pipiens pipiens strain Bruges A (S)

<400> 96

Gly Lys Ile Arg Gly Thr Thr Leu Glu Ala Pro Ser Gly Lys Lys Val
 1 5 10 15

Asp Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro Pro Leu Gly Pro Leu
 20 25 30

Arg Phe Arg His Pro Arg Pro Ala Glu Arg Trp Thr Gly Val Leu Asn
 35 40 45

Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile Val Asp Thr Val Phe
 50 55 60

Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro Leu Ser
 65 70 75 80

Glu Asp Cys Leu Tyr Ile Asn Val Val Val Pro Arg Pro Arg Pro Lys
 85 90 95

Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly Gly Phe Tyr Ser Gly
 100 105 110

Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr Leu Ala Ser Glu Glu
 115 120 125

Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu Gly Phe
 130 135 140

Leu Phe Leu Gly
 145

<210> 97

<211> 152

<212> PRT

<213> Culex pipiens quinquefasciatus strain BO (R)

<400> 97

Gly Lys Ile Arg Gly Thr Thr Leu Glu Ala Pro Ser Gly Lys Lys Val
 1 5 10 15

Asp Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro Pro Leu Gly Pro Leu
 20 25 30

Arg Phe Arg His Pro Arg Pro Ala Glu Arg Trp Thr Gly Val Leu Asn
 35 40 45

Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile Val Asp Thr Val Phe
 50 55 60

Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro Leu Ser
 65 70 75 80

Glu Asp Cys Leu Tyr Ile Asn Val Val Val Pro Arg Pro Arg Pro Lys
 85 90 95

Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly Ser Phe Tyr Ser Gly
 100 105 110

Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr Leu Ala Ser Glu Glu
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115

120

125

Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu Gly Phe
 130 135 140

Leu Phe Leu Gly Thr Pro Glu Ala
 145 150

<210> 98

<211> 148

<212> PRT

<213> Culex pipiens quinquefasciatus strain DJI (R)

<400> 98

Gly Lys Ile Arg Gly Thr Thr Leu Glu Ala Pro Ser Gly Lys Lys Val
 1 5 10 15

Asp Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro Pro Leu Gly Pro Leu
 20 25 30

Arg Phe Arg His Pro Arg Pro Ala Glu Arg Trp Thr Gly Val Leu Asn
 35 40 45

Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile Val Asp Thr Val Phe
 50 55 60

Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro Leu Ser
 65 70 75 80

Glu Asp Cys Leu Tyr Ile Asn Val Val Val Pro Arg Pro Arg Pro Lys
 85 90 95

Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly Ser Phe Tyr Ser Gly
 100 105 110

Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr Leu Ala Ser Glu Glu
 115 120 125

Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu Gly Phe
 130 135 140

Leu Phe Leu Gly
 145

<210> 99

<211> 152

<212> PRT

<213> Culex pipiens quinquefasciatus strain Harare (R)

<400> 99

Gly Lys Ile Arg Gly Thr Thr Leu Glu Ala Pro Ser Gly Lys Lys Val
 1 5 10 15

Asp Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro Pro Leu Gly Pro Leu
 20 25 30

Arg Phe Arg His Pro Arg Pro Ala Glu Arg Trp Thr Gly Val Leu Asn
 35 40 45

Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile Val Asp Thr Val Phe
 50 55 60

Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro Leu Ser
 65 70 75 80

Glu Asp Cys Leu Tyr Ile Asn Val Val Val Pro Arg Pro Arg Pro Lys
 85 90 95

263365US0XPCT

Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly Ser Phe Tyr Ser Gly
 100 105 110
 Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr Leu Ala Ser Glu Glu
 115 120 125
 Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu Gly Phe
 130 135 140
 Leu Phe Leu Gly Thr Pro Glu Ala
 145 150

<210> 100

<211> 152

<212> PRT

<213> Culex pipiens quinquefasciatus strain Martinique (R)

<400> 100

Gly Lys Ile Arg Gly Thr Thr Leu Glu Ala Pro Ser Gly Lys Lys Val
 1 5 10 15
 Asp Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro Pro Leu Gly Pro Leu
 20 25 30
 Arg Phe Arg His Pro Arg Pro Ala Glu Arg Trp Thr Gly Val Leu Asn
 35 40 45
 Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile Val Asp Thr Val Phe
 50 55 60
 Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro Leu Ser
 65 70 75 80
 Glu Asp Cys Leu Tyr Ile Asn Val Val Val Pro Arg Pro Arg Pro Lys
 85 90 95
 Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly Ser Phe Tyr Ser Gly
 100 105 110
 Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr Leu Ala Ser Glu Glu
 115 120 125
 Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu Gly Phe
 130 135 140
 Leu Phe Leu Gly Thr Pro Glu Ala
 145 150

<210> 101

<211> 148

<212> PRT

<213> Culex pipiens pipiens strain Barriol (R)

<400> 101

Gly Lys Ile Arg Gly Thr Thr Leu Glu Ala Pro Ser Gly Lys Lys Val
 1 5 10 15
 Asp Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro Pro Leu Gly Pro Leu
 20 25 30
 Arg Phe Arg His Pro Arg Pro Ala Glu Arg Trp Thr Gly Val Leu Asn
 35 40 45
 Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile Val Asp Thr Val Phe
 50 55 60
 Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro Leu Ser
 65 70 75 80

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Glu Asp Cys Leu Tyr Ile Asn Val Val Val Pro Arg Pro Arg Pro Lys
85 90 95
Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly Ser Phe Tyr Ser Gly
100 105 110
Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr Leu Ala Ser Glu Glu
115 120 125
Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu Gly Phe
130 135 140
Leu Phe Leu Gly
145

<210> 102
<211> 148
<212> PRT
<213> Culex pipiens pipiens strain Bleuett (S)

<400> 102
Gly Lys Ile Arg Gly Thr Thr Leu Glu Ala Pro Ser Gly Lys Lys Val
1 5 10 15
Asp Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro Pro Leu Gly Pro Leu
20 25 30
Arg Phe Arg His Pro Arg Pro Ala Glu Arg Trp Thr Gly Val Leu Asn
35 40 45
Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile Val Asp Thr Val Phe
50 55 60
Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro Leu Ser
65 70 75 80
Glu Asp Cys Leu Tyr Ile Asn Val Val Val Pro Arg Pro Arg Pro Lys
85 90 95
Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly Gly Phe Tyr Ser Gly
100 105 110
Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr Leu Ala Ser Glu Glu
115 120 125
Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu Gly Phe
130 135 140
Leu Phe Leu Gly
145

<210> 103
<211> 148
<212> PRT
<213> Culex pipiens pipiens strain Bruges B (S)

<400> 103
Gly Lys Ile Arg Gly Thr Thr Leu Glu Ala Pro Ser Gly Lys Lys Val
1 5 10 15
Asp Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro Pro Leu Gly Pro Leu
20 25 30
Arg Phe Arg His Pro Arg Pro Ala Glu Arg Trp Thr Gly Val Leu Asn
35 40 45
Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile Val Asp Thr Val Phe
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Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro Leu Ser
 65 70 75 80

Glu Asp Cys Leu Tyr Ile Asn Val Val Val Pro Arg Pro Arg Pro Lys
 85 90 95

Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly Gly Phe Tyr Ser Gly
 100 105 110

Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr Leu Ala Ser Glu Glu
 115 120 125

Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu Gly Phe
 130 135 140

Leu Phe Leu Gly
 145

<210> 104

<211> 148

<212> PRT

<213> Culex pipiens pipiens strain Heteren (S)

<400> 104

Gly Lys Ile Arg Gly Thr Thr Leu Glu Ala Pro Ser Gly Lys Lys Val
 1 5 10 15

Asp Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro Pro Leu Gly Pro Leu
 20 25 30

Arg Phe Arg His Pro Arg Pro Ala Glu Arg Trp Thr Gly Val Leu Asn
 35 40 45

Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile Val Asp Thr Val Phe
 50 55 60

Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro Leu Ser
 65 70 75 80

Glu Asp Cys Leu Tyr Ile Asn Val Val Val Pro Arg Pro Arg Pro Lys
 85 90 95

Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly Gly Phe Tyr Ser Gly
 100 105 110

Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr Leu Ala Ser Glu Glu
 115 120 125

Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu Gly Phe
 130 135 140

Leu Phe Leu Gly
 145

<210> 105

<211> 149

<212> PRT

<213> Culex pipiens quinquefasciatus strain Ling (S)

<400> 105

Gln Gly Lys Ile Arg Gly Thr Thr Leu Glu Ala Pro Ser Gly Lys Lys
 1 5 10 15

Val Asp Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro Pro Leu Gly Pro
 20 25 30

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Leu Arg Phe Arg His Pro Arg Pro Ala Glu Arg Trp Thr Gly Val Leu
 35 40 45
 Asn Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile Val Asp Thr Val
 50 55 60
 Phe Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro Leu
 65 70 75 80
 Ser Glu Asp Cys Leu Tyr Ile Asn Val Val Val Pro Arg Pro Arg Pro
 85 90 95
 Lys Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly Gly Phe Tyr Ser
 100 105 110
 Gly Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr Leu Ala Ser Glu
 115 120 125
 Glu Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu Gly
 130 135 140
 Phe Leu Phe Leu Gly
 145

<210> 106

<211> 148

<212> PRT

<213> Culex pipiens quinquefasciatus strain Mao (S)

<400> 106

Gly Lys Ile Arg Gly Thr Thr Leu Glu Ala Pro Ser Gly Lys Lys Val
 1 5 10 15
 Asp Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro Pro Leu Gly Pro Leu
 20 25 30
 Arg Phe Arg His Pro Arg Pro Ala Glu Arg Trp Thr Gly Val Leu Asn
 35 40 45
 Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile Val Asp Thr Val Phe
 50 55 60
 Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro Leu Ser
 65 70 75 80
 Glu Asp Cys Leu Tyr Ile Asn Val Val Val Pro Arg Pro Arg Pro Lys
 85 90 95
 Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly Gly Phe Tyr Ser Gly
 100 105 110
 Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr Leu Ala Ser Glu Glu
 115 120 125
 Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu Gly Phe
 130 135 140
 Leu Phe Leu Gly
 145

<210> 107

<211> 144

<212> PRT

<213> Culex pipiens quinquefasciatus strain TemR (S)

<400> 107

Lys Ile Arg Gly Thr Thr Leu Glu Ala Pro Ser Gly Lys Lys Val Asp

1

5

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15

Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro Pro Leu Gly Pro Leu Arg
 20 25 30
 Phe Arg His Pro Arg Pro Ala Glu Arg Trp Thr Gly Val Leu Asn Ala
 35 40 45
 Thr Lys Pro Pro Asn Ser Cys Val Gln Ile Val Asp Thr Val Phe Gly
 50 55 60
 Asp Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro Leu Ser Glu
 65 70 75 80
 Asp Cys Leu Tyr Ile Asn Val Val Val Pro Arg Pro Arg Pro Lys Asn
 85 90 95
 Ala Ala Val Met Leu Trp Ile Phe Gly Gly Gly Phe Tyr Ser Gly Thr
 100 105 110
 Ala Thr Leu Asp Val Tyr Asp His Arg Thr Leu Thr Ser Glu Glu Asn
 115 120 125
 Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu Gly Phe Leu
 130 135 140

<210> 108

<211> 148

<212> PRT

<213> Culex torrentium strain Uppsala

<400> 108

Gly Lys Ile Arg Gly Thr Thr Leu Glu Ala Pro Ser Gly Lys Lys Val
 1 5 10 15
 Asp Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro Pro Leu Gly Pro Leu
 20 25 30
 Arg Phe Arg His Pro Arg Pro Ala Glu Arg Trp Thr Gly Val Leu Asn
 35 40 45
 Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile Val Asp Thr Val Phe
 50 55 60
 Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro Leu Ser
 65 70 75 80
 Glu Asp Cys Leu Tyr Ile Asn Val Val Val Pro Arg Pro Arg Pro Lys
 85 90 95
 Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly Gly Phe Tyr Ser Gly
 100 105 110
 Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr Leu Ala Ser Glu Glu
 115 120 125
 Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu Gly Phe
 130 135 140
 Leu Phe Leu Gly
 145

<210> 109

<211> 148

<212> PRT

<213> Culex pipiens quinquefasciatus strain Trans (S)

<400> 109

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Gly Lys Ile Arg Gly Thr Thr Leu Glu Ala Pro Ser Gly Lys Lys Val
 1 5 10 15
 Asp Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro Pro Leu Gly Pro Leu
 20 25 30
 Arg Phe Arg His Pro Arg Pro Ala Glu Arg Trp Thr Gly Val Leu Asn
 35 40 45
 Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile Val Asp Thr Val Phe
 50 55 60
 Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro Leu Ser
 65 70 75 80
 Glu Asp Cys Leu Tyr Ile Asn Val Val Val Pro Arg Pro Arg Pro Lys
 85 90 95
 Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly Gly Phe Tyr Ser Gly
 100 105 110
 Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr Leu Thr Ser Glu Glu
 115 120 125
 Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu Gly Phe
 130 135 140

Leu Phe Leu Gly
 145

<210> 110

<211> 137

<212> PRT

<213> Culex pipiens quinquefasciatus strain BED (S)

<400> 110

Thr Leu Glu Ala Pro Ser Gly Lys Lys Val Asp Ala Trp Met Gly Ile
 1 5 10 15
 Pro Tyr Ala Gln Pro Pro Leu Gly Pro Leu Arg Phe Arg His Pro Arg
 20 25 30
 Pro Ala Glu Arg Trp Thr Gly Val Leu Asn Ala Thr Lys Pro Pro Asn
 35 40 45
 Ser Cys Val Gln Ile Val Asp Thr Val Phe Gly Asp Phe Pro Gly Ala
 50 55 60
 Thr Met Trp Asn Pro Asn Thr Pro Leu Ser Glu Asp Cys Leu Tyr Ile
 65 70 75 80
 Asn Val Val Val Pro Arg Pro Arg Pro Lys Asn Ala Ala Val Met Leu
 85 90 95
 Trp Ile Phe Gly Gly Gly Phe Tyr Ser Gly Thr Ala Thr Leu Asp Val
 100 105 110
 Tyr Asp His Arg Thr Leu Ala Ser Glu Glu Asn Val Ile Val Val Ser
 115 120 125
 Leu Gln Tyr Arg Val Ala Ser Leu Gly
 130 135

<210> 111

<211> 144

<212> PRT

<213> Culex pipiens quinquefasciatus strain BSQ (S)

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<400> 111

Gly Lys Ile Arg Gly Thr Thr Leu Glu Ala Pro Ser Gly Lys Lys Val
 1 5 10 15
 Asp Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro Pro Leu Gly Pro Leu
 20 25 30
 Arg Phe Arg His Pro Arg Pro Ala Glu Arg Trp Thr Gly Val Leu Asn
 35 40 45
 Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile Val Asp Thr Val Phe
 50 55 60
 Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro Leu Ser
 65 70 75 80
 Glu Asp Cys Leu Tyr Ile Asn Val Val Val Pro Arg Pro Arg Pro Lys
 85 90 95
 Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly Gly Phe Tyr Ser Gly
 100 105 110
 Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr Leu Ala Ser Glu Glu
 115 120 125
 Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu Gly Phe
 130 135 140

<210> 112

<211> 137

<212> PRT

<213> Culex pipiens quinquefasciatus strain Brazza (S)

<400> 112

Leu Glu Ala Pro Ser Gly Lys Lys Val Asp Ala Trp Met Gly Ile Pro
 1 5 10 15
 Tyr Ala Gln Pro Pro Leu Gly Pro Leu Arg Phe Arg His Pro Arg Pro
 20 25 30
 Ala Glu Arg Trp Thr Gly Val Leu Asn Ala Thr Lys Pro Pro Asn Ser
 35 40 45
 Cys Val Gln Ile Val Asp Thr Val Phe Gly Asp Phe Pro Gly Ala Thr
 50 55 60
 Met Trp Asn Pro Asn Thr Pro Leu Ser Glu Asp Cys Leu Tyr Ile Asn
 65 70 75 80
 Val Val Val Pro Arg Pro Arg Pro Lys Asn Ala Ala Val Met Leu Trp
 85 90 95
 Ile Phe Gly Gly Gly Phe Tyr Ser Gly Thr Ala Thr Leu Asp Val Tyr
 100 105 110
 Asp His Arg Thr Leu Ala Ser Glu Glu Asn Val Ile Val Val Ser Leu
 115 120 125
 Gln Tyr Arg Val Ala Ser Leu Gly Phe
 130 135

<210> 113

<211> 144

<212> PRT

<213> Culex pipiens quinquefasciatus strain Bouake (R)

<400> 113

Gly Lys Ile Arg Gly Thr Thr Leu Glu Ala Pro Ser Gly Lys Lys Val

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Asp Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro Pro Leu Gly Pro Leu
 20 25 30
 Arg Phe Arg His Pro Arg Pro Ala Glu Arg Trp Thr Gly Val Leu Asn
 35 40 45
 Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile Val Asp Thr Val Phe
 50 55 60
 Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro Asn Thr Pro Leu Ser
 65 70 75 80
 Glu Asp Cys Leu Tyr Ile Asn Val Val Val Pro Arg Pro Arg Pro Lys
 85 90 95
 Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly Gly Phe Tyr Ser Gly
 100 105 110
 Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr Leu Ala Ser Glu Glu
 115 120 125
 Asn Val Ile Val Val Ser Leu Gln Tyr Arg Val Ala Ser Leu Gly Phe
 130 135 140

<210> 114

<211> 138

<212> PRT

<213> Culex pipiens quinquefasciatus strain Thai (S)

<400> 114

Thr Leu Glu Ala Pro Ser Gly Lys Lys Val Asp Ala Trp Met Gly Ile
 1 5 10 15
 Pro Tyr Ala Gln Pro Pro Leu Gly Pro Leu Arg Phe Arg His Pro Arg
 20 25 30
 Pro Ala Glu Arg Trp Thr Gly Val Leu Asn Ala Thr Lys Pro Pro Asn
 35 40 45
 Ser Cys Val Gln Ile Val Asp Thr Val Phe Gly Asp Phe Pro Gly Ala
 50 55 60
 Thr Met Trp Asn Pro Asn Thr Pro Leu Ser Glu Asp Cys Leu Tyr Ile
 65 70 75 80
 Asn Val Val Val Pro Arg Pro Arg Pro Lys Asn Ala Ala Val Met Leu
 85 90 95
 Trp Ile Phe Gly Gly Gly Phe Tyr Ser Gly Thr Ala Thr Leu Asp Val
 100 105 110
 Tyr Asp His Arg Thr Leu Ala Ser Glu Glu Asn Val Ile Val Val Ser
 115 120 125
 Leu Gln Tyr Arg Val Ala Ser Leu Gly Phe
 130 135

<210> 115

<211> 141

<212> PRT

<213> Culex pipiens quinquefasciatus strain Madurai (S)

<400> 115

Leu Glu Ala Pro Ser Gly Lys Lys Val Asp Ala Trp Met Gly Ile Pro
 Page 72

1 5 10 15

<210> 116
<211> 141
<212> PRT
<213> *Culex pipiens quinquefasciatus* strain Recife (R)

Leu Glu Ala Pro Ser Gly Lys Lys Val Asp Ala Trp Met Gly Ile Pro
1 5 10 15

<210> 117
<211> 137
<212> PRT
<213> Culex pipiens quinquefasciatus strain Bresil (S)

Leu Glu Ala Pro Ser Gly Lys Lys Val Asp Ala Trp Met Gly Ile Pro
1 5 10 15

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Tyr Ala Gln Pro Pro Leu Gly Pro Leu Arg Phe Arg His Pro Arg Pro
 20 25 30
 Ala Glu Arg Trp Thr Gly Val Leu Asn Ala Thr Lys Pro Pro Asn Ser
 35 40 45
 Cys Val Gln Ile Val Asp Thr Val Phe Gly Asp Phe Pro Gly Ala Thr
 50 55 60
 Met Trp Asn Pro Asn Thr Pro Leu Ser Glu Asp Cys Leu Tyr Ile Asn
 65 70 75 80
 Val Val Val Pro Arg Pro Arg Pro Lys Asn Ala Ala Val Met Leu Trp
 85 90 95
 Ile Phe Gly Gly Gly Phe Tyr Ser Gly Thr Ala Thr Leu Asp Val Tyr
 100 105 110
 Asp His Arg Thr Leu Ala Ser Glu Glu Asn Val Ile Val Val Ser Leu
 115 120 125
 Gln Tyr Arg Val Ala Ser Leu Gly Phe
 130 135

<210> 118

<211> 139

<212> PRT

<213> Culex pipiens quinquefasciatus strain Moorea (S)

<400> 118

Thr Leu Glu Ala Pro Ser Gly Lys Lys Val Asp Ala Trp Met Gly Ile
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 Pro Tyr Ala Gln Pro Pro Leu Gly Pro Leu Arg Phe Arg His Pro Arg
 20 25 30
 Pro Ala Glu Arg Trp Thr Gly Val Leu Asn Ala Thr Lys Pro Pro Asn
 35 40 45
 Ser Cys Val Gln Ile Val Asp Thr Val Phe Gly Asp Phe Pro Gly Ala
 50 55 60
 Thr Met Trp Asn Pro Asn Thr Pro Leu Ser Glu Asp Cys Leu Tyr Ile
 65 70 75 80
 Asn Val Val Val Pro Arg Pro Arg Pro Lys Asn Ala Ala Val Met Leu
 85 90 95
 Trp Ile Phe Gly Gly Gly Phe Tyr Ser Gly Thr Ala Thr Leu Asp Val
 100 105 110
 Tyr Asp His Arg Thr Leu Ala Ser Glu Glu Asn Val Ile Val Val Ser
 115 120 125
 Leu Gln Tyr Arg Val Ala Ser Leu Gly Phe Leu
 130 135

<210> 119

<211> 134

<212> PRT

<213> Culex pipiens pipiens strain Killcare (S)

<400> 119

Ser Gly Lys Lys Val Asp Ala Trp Met Gly Ile Pro Tyr Ala Gln Pro
 1 5 10 15

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Pro Leu Gly Pro Leu Arg Phe Arg His Pro Arg Pro Ala Glu Arg Trp
 20 25 30
 Thr Gly Val Leu Asn Ala Thr Lys Pro Pro Asn Ser Cys Val Gln Ile
 35 40 45
 Val Asp Thr Val Phe Gly Asp Phe Pro Gly Ala Thr Met Trp Asn Pro
 50 55 60
 Asn Thr Pro Leu Ser Glu Asp Cys Leu Tyr Ile Asn Val Val Val Pro
 65 70 75 80
 Arg Pro Arg Pro Lys Asn Ala Ala Val Met Leu Trp Ile Phe Gly Gly
 85 90 95
 Gly Phe Tyr Ser Gly Thr Ala Thr Leu Asp Val Tyr Asp His Arg Thr
 100 105 110
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 130

<210> 120

<211> 2527

<212> DNA

<213> Anopheles gambiae strain YAO

<400> 120

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<210> 121
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 <212> DNA
 <213> Anopheles gambiae strain YAO

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Met Val Pro Leu Gly Leu Leu Gly Val Thr Ala Leu Leu Leu Ile Leu
20 25 30

cca ccc tcc gcg ctg gtg cag ggc cgg cac cac gag ctc aac aat ggt 144
Pro Pro Ser Ala Leu Val Gln Gly Arg His His Glu Leu Asn Asn Gly
35 40 45

gcc gcc atc gga tcg cat cag ctg tcg gct gcc gcc ggt gtt ggc ctt 192
Ala Ala Ile Gly Ser His Gln Leu Ser Ala Ala Ala Gly Val Gly Leu
50 55 60

tcc tcc cag tcc gcc cag tcc gga tcg ctc gca tcc ggt gtg atg tca 240
Ser Ser Gln Ser Ala Gln Ser Gly Ser Leu Ala Ser Gly Val Met Ser
65 70 75 80

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85 90 95

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100 105 110

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Ala Asp Ala Phe Phe Thr Pro Tyr Ile Gly His Gly Glu Ser Ala Arg
115 120 125

att ata gat gcc gag ttg ggc acg ctc gag cat gta cac agt gga gca 432
Ile Ile Asp Ala Glu Leu Gly Thr Leu Glu His Val His Ser Gly Ala
130 135 140

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Thr Pro Arg Arg Arg Gly Leu Thr Arg Arg Glu Ser Asn Ser Asp Ala
145 150 155 160

aac gac aac gat ccg ctg gtg gtc aac acg gat aag ggg cgc atc cgc 528
Asn Asp Asn Asp Pro Leu Val Val Asn Thr Asp Lys Gly Arg Ile Arg
165 170 175

ggc att acg gtc gat gcc ccc agc ggc aag aag gtg gac gtg tgg ctc 576
Gly Ile Thr Val Asp Ala Pro Ser Gly Lys Lys Val Asp Val Trp Leu
180 185 190

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ccc aac agc tgc gtg cag atc gtg gac acc gtg ttc ggc gac ttc ccg Pro Asn Ser Cys Val Gln Ile Val Asp Thr Val Phe Gly Asp Phe Pro	225	230	235 720
ggc gcg acc atg tgg aac ccg aac acg ccc ctg tcc gag gac tgt ctg Gly Ala Thr Met Trp Asn Pro Asn Thr Pro Leu Ser Glu Asp Cys Leu	245	250	255 768
tac att aac gtg gtg gca ccg cgg ccc cgg ccc aag aat gcg gcc gtc Tyr Ile Asn Val Val Ala Pro Arg Pro Arg Pro Lys Asn Ala Ala Val	260	265	270 816
atg ctg tgg atc ttc ggc ggc agc ttc tac tcc ggc acc gcc acc ctg Met Leu Trp Ile Phe Gly Gly Ser Phe Tyr Ser Gly Thr Ala Thr Leu	275	280	285 864
gac gtg tac gac cac cgg gcg ctt gcg tcg gag gag aac gtg atc gtg Asp Val Tyr Asp His Arg Ala Leu Ala Ser Glu Glu Asn Val Ile Val	290	295	300 912
gtg tcg ctg cag tac cgc gtg gcc agt ctg ggc ttc ctg ttt ctc ggc Val Ser Leu Gln Tyr Arg Val Ala Ser Leu Gly Phe Leu Phe Leu Gly	305	310	315 960
acc ccg gaa gcg ccg ggc aat gcg gga ctg ttc gat cag aac ctt gcg Thr Pro Glu Ala Pro Gly Asn Ala Gly Leu Phe Asp Gln Asn Leu Ala	325	330	335 1008
cta cgc tgg gtg ccg gac aac att cac cgg ttc ggt ggt gat ccg tcg Leu Arg Trp Val Arg Asp Asn Ile His Arg Phe Gly Gly Asp Pro Ser	340	345	350 1056
cgc gtg aca ctg ttc ggc gag agt gcc ggt gcc gtc tcg gtg tcg ctg Arg Val Thr Leu Phe Gly Glu Ser Ala Gly Ala Val Ser Val Ser Leu	355	360	365 1104
cat ctg ctg tcc gcc ctt tcc cgc gat ctg ttc cag cgg gcc atc ctg His Leu Leu Ser Ala Leu Ser Arg Asp Leu Phe Gln Arg Ala Ile Leu	370	375	380 1152
cag agc ggc tcg ccg acg gca ccg tgg gca ttg gta tcg cgc gag gaa Gln Ser Gly Ser Pro Thr Ala Pro Trp Ala Leu Val Ser Arg Glu Glu	385	390	395 1200
gcc acg cta aga gca ctg ccg ttg gcc gag gcg gtc ggc tgc ccg cac Ala Thr Leu Arg Ala Leu Arg Leu Ala Glu Ala Val Gly Cys Pro His	405	410	415 1248
gaa ccg agc aag ctg agc gat gcg gtc gag tgt ctg cgc ggc aag gat Glu Pro Ser Lys Leu Ser Asp Ala Val Glu Cys Leu Arg Gly Lys Asp	420	425	430 1296
ccg cac gtg ctg gtc aac aac gag tgg ggc acg ctc ggc att tgc gag Pro His Val Leu Val Asn Asn Glu Trp Gly Thr Leu Gly Ile Cys Glu	435	440	445 1344
ttc ccg ttc gtg ccg gtg gtc gac ggt gcg ttc ctg gac gag acg ccg Phe Pro Phe Val Pro Val Val Asp Gly Ala Phe Leu Asp Glu Thr Pro	450	455	460 1392
cag cgt tcg ctc gcc agc ggg cgc ttc aag aag acg gag atc ctc acc Gln Arg Ser Leu Ala Ser Gly Arg Phe Lys Lys Thr Glu Ile Leu Thr			1440

465	470	263365US0XPCT 475	480	
ggc agc aac acg gag gag ggc tac tac ttc atc atc tac tac ctg acc Gly Ser Asn Thr Glu Glu Gly Tyr Tyr Phe Ile Ile Tyr Tyr Leu Thr 485 490 495				1488
gag ctg ctg cgc aag gag gag ggc gtg acc gtg acg cgc gag gag ttc Glu Leu Leu Arg Lys Glu Glu Gly Val Thr Val Thr Arg Glu Glu Phe 500 505 510				1536
ctg cag gcg gtg cgc gag ctc aac ccg tac gtg aac ggg gcg gcc cgg Leu Gln Ala Val Arg Glu Leu Asn Pro Tyr Val Asn Gly Ala Ala Arg 515 520 525				1584
cag gcg atc gtg ttc gag tac acc gac tgg acc gag ccg gac aac ccg Gln Ala Ile Val Phe Glu Tyr Thr Asp Trp Thr Glu Pro Asp Asn Pro 530 535 540				1632
aac agc aac cgg gac gcg ctg gac aag atg gtg ggc gac tat cac ttc Asn Ser Asn Arg Asp Ala Leu Asp Lys Met Val Gly Asp Tyr His Phe 545 550 555 560				1680
acc tgc aac gtg aac gag ttc gcg cag cgg tac gcc gag gag ggc aac Thr Cys Asn Val Asn Glu Phe Ala Gln Arg Tyr Ala Glu Glu Gly Asn 565 570 575				1728
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ccg cgc tgg acg ggc gtg atg cac ggc gac gag atc aac tac gtg ttc Pro Arg Trp Thr Gly Val Met His Gly Asp Glu Ile Asn Tyr Val Phe 595 600 605				1824
ggc gaa ccg ctc aac ccc acc ctc ggc tac acc gag gac gag aaa gac Gly Glu Pro Leu Asn Pro Thr Leu Gly Tyr Thr Glu Asp Glu Lys Asp 610 615 620				1872
ttt agc cgg aag atc atg cga tac tgg tct aac ttt gcc aaa acc ggc Phe Ser Arg Lys Ile Met Arg Tyr Trp Ser Asn Phe Ala Lys Thr Gly 625 630 635 640				1920
aat cca aat ccc aac aca gcc agc agc gaa ttc ccc gag tgg ccc aag Asn Pro Asn Pro Asn Thr Ala Ser Ser Glu Phe Pro Glu Trp Pro Lys 645 650 655				1968
cac acc gcc cac gga cgg cac tat ctg gag ctg ggc ctc aac acg tcc His Thr Ala His Gly Arg His Tyr Leu Glu Leu Gly Leu Asn Thr Ser 660 665 670				2016
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tac ctt ccc cag cta gtt gca gct acc tcg aac cta cca ggg cca gca Tyr Leu Pro Gln Leu Val Ala Ala Thr Ser Asn Leu Pro Gly Pro Ala 690 695 700				2112
ccg ccc agt gaa ccg tgc gaa agc agc gca ttt ttt tac cga cct gat Pro Pro Ser Glu Pro Cys Glu Ser Ser Ala Phe Phe Tyr Arg Pro Asp 705 710 720				2160
ctg atc gtg ctg ctg gtg tcg ctg ctt acg gcg acc gtc aga ttc ata Leu Ile Val Leu Leu Val Ser Leu Leu Thr Ala Thr Val Arg Phe Ile 725 730 735				2208
caa taa Gln				2214

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 Pro Pro Ser Ala Leu Val Gln Gly Arg His His Glu Leu Asn Asn Gly
 35 40 45
 Ala Ala Ile Gly Ser His Gln Leu Ser Ala Ala Ala Gly Val Gly Leu
 50 55 60
 Ser Ser Gln Ser Ala Gln Ser Gly Ser Leu Ala Ser Gly Val Met Ser
 65 70 75 80
 Ser Val Pro Ala Ala Gly Ala Ser Ser Ser Ser Ser Ser Leu Leu
 85 90 95
 Ser Ser Ser Ala Glu Asp Asp Val Ala Arg Ile Thr Leu Ser Lys Asp
 100 105 110
 Ala Asp Ala Phe Phe Thr Pro Tyr Ile Gly His Gly Glu Ser Ala Arg
 115 120 125
 Ile Ile Asp Ala Glu Leu Gly Thr Leu Glu His Val His Ser Gly Ala
 130 135 140
 Thr Pro Arg Arg Arg Gly Leu Thr Arg Arg Glu Ser Asn Ser Asp Ala
 145 150 155 160
 Asn Asp Asn Asp Pro Leu Val Val Asn Thr Asp Lys Gly Arg Ile Arg
 165 170 175
 Gly Ile Thr Val Asp Ala Pro Ser Gly Lys Lys Val Asp Val Trp Leu
 180 185 190
 Gly Ile Pro Tyr Ala Gln Pro Pro Val Gly Pro Leu Arg Phe Arg His
 195 200 205
 Pro Arg Pro Ala Glu Lys Trp Thr Gly Val Leu Asn Thr Thr Thr Pro
 210 215 220
 Pro Asn Ser Cys Val Gln Ile Val Asp Thr Val Phe Gly Asp Phe Pro
 225 230 235 240
 Gly Ala Thr Met Trp Asn Pro Asn Thr Pro Leu Ser Glu Asp Cys Leu
 245 250 255
 Tyr Ile Asn Val Val Ala Pro Arg Pro Arg Pro Lys Asn Ala Ala Val
 260 265 270
 Met Leu Trp Ile Phe Gly Gly Ser Phe Tyr Ser Gly Thr Ala Thr Leu
 275 280 285
 Asp Val Tyr Asp His Arg Ala Leu Ala Ser Glu Glu Asn Val Ile Val
 290 295 300
 Val Ser Leu Gln Tyr Arg Val Ala Ser Leu Gly Phe Leu Phe Leu Gly
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Thr Pro Glu Ala Pro Gly Asn Ala Gly Leu Phe Asp Gln Asn Leu Ala
 325 330 335
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 340 345 350
 Arg Val Thr Leu Phe Gly Glu Ser Ala Gly Ala Val Ser Val Ser Leu
 355 360 365
 His Leu Leu Ser Ala Leu Ser Arg Asp Leu Phe Gln Arg Ala Ile Leu
 370 375 380
 Gln Ser Gly Ser Pro Thr Ala Pro Trp Ala Leu Val Ser Arg Glu Glu
 385 390 395 400
 Ala Thr Leu Arg Ala Leu Arg Leu Ala Glu Ala Val Gly Cys Pro His
 405 410 415
 Glu Pro Ser Lys Leu Ser Asp Ala Val Glu Cys Leu Arg Gly Lys Asp
 420 425 430
 Pro His Val Leu Val Asn Asn Glu Trp Gly Thr Leu Gly Ile Cys Glu
 435 440 445
 Phe Pro Phe Val Pro Val Val Asp Gly Ala Phe Leu Asp Glu Thr Pro
 450 455 460
 Gln Arg Ser Leu Ala Ser Gly Arg Phe Lys Lys Thr Glu Ile Leu Thr
 465 470 475 480
 Gly Ser Asn Thr Glu Glu Gly Tyr Tyr Phe Ile Ile Tyr Tyr Leu Thr
 485 490 495
 Glu Leu Leu Arg Lys Glu Glu Gly Val Thr Val Thr Arg Glu Glu Phe
 500 505 510
 Leu Gln Ala Val Arg Glu Leu Asn Pro Tyr Val Asn Gly Ala Ala Arg
 515 520 525
 Gln Ala Ile Val Phe Glu Tyr Thr Asp Trp Thr Glu Pro Asp Asn Pro
 530 535 540
 Asn Ser Asn Arg Asp Ala Leu Asp Lys Met Val Gly Asp Tyr His Phe
 545 550 555 560
 Thr Cys Asn Val Asn Glu Phe Ala Gln Arg Tyr Ala Glu Glu Gly Asn
 565 570 575
 Asn Val Tyr Met Tyr Leu Tyr Thr His Arg Ser Lys Gly Asn Pro Trp
 580 585 590
 Pro Arg Trp Thr Gly Val Met His Gly Asp Glu Ile Asn Tyr Val Phe
 595 600 605
 Gly Glu Pro Leu Asn Pro Thr Leu Gly Tyr Thr Glu Asp Glu Lys Asp
 610 615 620
 Phe Ser Arg Lys Ile Met Arg Tyr Trp Ser Asn Phe Ala Lys Thr Gly
 625 630 635 640
 Asn Pro Asn Pro Asn Thr Ala Ser Ser Glu Phe Pro Glu Trp Pro Lys
 645 650 655
 His Thr Ala His Gly Arg His Tyr Leu Glu Leu Gly Leu Asn Thr Ser
 660 665 670
 Phe Val Gly Arg Gly Pro Arg Leu Arg Gln Cys Ala Phe Trp Lys Lys
 675 680 685

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Tyr Leu Pro Gln Leu Val Ala Ala Thr Ser Asn Leu Pro Gly Pro Ala
690 695 700

Pro Pro Ser Glu Pro Cys Glu Ser Ser Ala Phe Phe Tyr Arg Pro Asp
705 710 715 720

Leu Ile Val Leu Leu Val Ser Leu Leu Thr Ala Thr Val Arg Phe Ile
725 730 735

Gln

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<220>
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20

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<220>
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20

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Met Val Pro Leu Gly Leu Leu Gly Val Thr Ala Leu Leu Leu Ile Leu
20 25 30
cca ccc tcc gcg ctg gtg cag ggc cgg cac cac gag ctc aac aat ggt 144
Pro Pro Ser Ala Leu Val Gln Gly Arg His His Glu Leu Asn Asn Gly
35 40 45
gcc gcc atc gga tcg cat cag ctg tcg gct gcc gcc ggt gtt ggc ctt 192
Ala Ala Ile Gly Ser His Gln Leu Ser Ala Ala Ala Gly Val Gly Leu
50 55 60
tcc tcc cag tcc gcc cag tcc gga tcg ctc gca tcc ggt gtg atg tca 240
Ser Ser Gln Ser Ala Gln Ser Gly Ser Leu Ala Ser Gly Val Met Ser
65 70 75 80

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Ser Val Pro Ala Ala Gly Ala Ser Ser Ser Ser Ser Ser Ser Leu Leu	
85 90 95	
tca tcg tca gcc gag gac gac gtg gcg cgc att act ctc agc aag gac	336
Ser Ser Ser Ala Glu Asp Asp Val Ala Arg Ile Thr Leu Ser Lys Asp	
100 105 110	
gca gac gca ttt ttt aca cca tat ata ggt cac ggt gag tcc gta cga	384
Ala Asp Ala Phe Phe Thr Pro Tyr Ile Gly His Gly Glu Ser Val Arg	
115 120 125	
att ata gat gcc gag ttg ggc acg ctc gag cat gtc cac agt gga gca	432
Ile Ile Asp Ala Glu Leu Gly Thr Leu Glu His Val His Ser Gly Ala	
130 135 140	
acg ccg cgg cga cgc ggt ctg acg agg cgc gag tcc aac tcg gac gcg	480
Thr Pro Arg Arg Arg Gly Leu Thr Arg Arg Glu Ser Asn Ser Asp Ala	
145 150 155 160	
aac gac aac gat ccg ctg gtg gtc aac acg gat aag ggg cgc atc cgc	528
Asn Asp Asn Asp Pro Leu Val Val Asn Thr Asp Lys Gly Arg Ile Arg	
165 170 175	
ggc att acg gtc gat gcg ccc agc ggc aag aag gtg gac gtg tgg ctc	576
Gly Ile Thr Val Asp Ala Pro Ser Gly Lys Lys Val Asp Val Trp Leu	
180 185 190	
ggc att ccc tac gcc cag ccg ccg gtc ggg ccg tta cgg ttc cgt cat	624
Gly Ile Pro Tyr Ala Gln Pro Pro Val Gly Pro Leu Arg Phe Arg His	
195 200 205	
ccg ccg ccg gcc gaa aag tgg acc ggc gtg ctg aac acg acc aca ccg	672
Pro Arg Pro Ala Glu Lys Trp Thr Gly Val Leu Asn Thr Thr Thr Pro	
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ccc aac agc tgc gtg cag atc gtg gac acc gtg ttc ggc gac ttc ccg	720
Pro Asn Ser Cys Val Gln Ile Val Asp Thr Val Phe Gly Asp Phe Pro	
225 230 235 240	
ggc gcg acc atg tgg aac ccg aac acg ccc ctg tcc gag gac tgt ctg	768
Gly Ala Thr Met Trp Asn Pro Asn Thr Pro Leu Ser Glu Asp Cys Leu	
245 250 255	
tac att aac gtg gtg gca ccg cga ccc cgg ccc aag aat gcg gcc gtc	816
Tyr Ile Asn Val Val Ala Pro Arg Pro Arg Pro Lys Asn Ala Ala Val	
260 265 270	
atg ctg tgg atc ttc ggc ggc ggc ttc tac tcc ggc acc gcc acc ctg	864
Met Leu Trp Ile Phe Gly Gly Gly Phe Tyr Ser Gly Thr Ala Thr Leu	
275 280 285	
gac gtg tac gac cac cgg gcg ctt gcg tcg gag gag aac gtg atc gtg	912
Asp Val Tyr Asp His Arg Ala Leu Ala Ser Glu Glu Asn Val Ile Val	
290 295 300	
gtg tcg ctg cag tac cgc gtg gcc agt ctg ggc ttc ctg ttt ctc ggc	960
Val Ser Leu Gln Tyr Arg Val Ala Ser Leu Gly Phe Leu Phe Leu Gly	
305 310 315 320	
acc ccg gaa gcg ccg ggc aat gcg gga ctg ttc gat cag aac ctt gcg	1008
Thr Pro Glu Ala Pro Gly Asn Ala Gly Leu Phe Asp Gln Asn Leu Ala	
325 330 335	
cta cgc tgg gtg cgg gac aac att cac cgg ttc ggt ggt gat ccg tcg	1056
Leu Arg Trp Val Arg Asp Asn Ile His Arg Phe Gly Gly Asp Pro Ser	
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Arg	Val	Thr	Leu	Phe	Gly	Glu	Ser	Ala	Gly	Ala	Val	Ser	Val	Ser	Leu	
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cat	ctg	ctg	tcc	gcc	ctg	tcc	cgc	gat	ctg	ttc	cag	cgg	gcc	atc	ctg	1152
His	Leu	Leu	Ser	Ala	Leu	Ser	Arg	Asp	Leu	Phe	Gln	Arg	Ala	Ile	Leu	
	370					375					380					
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Gln	Ser	Gly	Ser	Pro	Thr	Ala	Pro	Trp	Ala	Leu	Val	Ser	Arg	Glu	Glu	
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gcc	acg	cta	aga	gca	ctg	cgg	ttg	gcc	gag	gcg	gtc	ggc	tgc	ccg	cac	1248
Ala	Thr	Leu	Arg	Ala	Leu	Arg	Leu	Ala	Glu	Ala	Val	Gly	Cys	Pro	His	
				405					410					415		
gaa	ccg	agc	aag	ctg	agc	gat	gcg	gtc	gag	tgt	ctg	cgc	ggc	aag	gat	1296
Glu	Pro	Ser	Lys	Leu	Ser	Asp	Ala	Val	Glu	Cys	Leu	Arg	Gly	Lys	Asp	
			420					425					430			
ccg	cac	gtg	ctg	gtc	aac	aac	gag	tgg	ggc	acg	ctc	ggc	att	tgc	gag	1344
Pro	His	Val	Leu	Val	Asn	Asn	Glu	Trp	Gly	Thr	Leu	Gly	Ile	Cys	Glu	
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ttc	ccg	ttc	gtg	ccg	gtg	gtc	gac	ggc	gag	ttc	ctg	gac	gag	acg	ccg	1392
Phe	Pro	Phe	Val	Pro	Val	Val	Asp	Gly	Ala	Phe	Leu	Asp	Glu	Thr	Pro	
	450					455					460					
cag	cgt	tcg	ctc	gcc	agc	ggg	cgc	ttc	aag	aag	acg	gag	atc	ctc	acc	1440
Gln	Arg	Ser	Leu	Ala	Ser	Gly	Arg	Phe	Lys	Lys	Thr	Glu	Ile	Leu	Thr	
	465				470					475					480	
ggc	agc	aac	acg	gag	gag	ggc	tac	tac	ttc	atc	atc	tac	tac	ctg	acc	1488
Gly	Ser	Asn	Thr	Glu	Glu	Gly	Tyr	Tyr	Phe	Ile	Ile	Tyr	Tyr	Leu	Thr	
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Glu	Leu	Leu	Arg	Lys	Glu	Glu	Gly	Val	Thr	Val	Thr	Arg	Glu	Glu	Phe	
			500					505					510			
ctg	cag	gag	gtg	cgc	gag	ctc	aac	ccg	tac	gtg	aac	ggg	gag	gcc	cgg	1584
Leu	Gln	Ala	Val	Arg	Glu	Leu	Asn	Pro	Tyr	Val	Asn	Gly	Ala	Ala	Arg	
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cag	gag	atc	gtg	ttc	gag	tac	acc	gac	tgg	acc	gag	ccg	gac	aac	ccg	1632
Gln	Ala	Ile	Val	Phe	Glu	Tyr	Thr	Asp	Trp	Thr	Glu	Pro	Asp	Asn	Pro	
	530					535					540					
aac	agc	aac	cgg	gac	gag	ctg	gac	aag	atg	gtg	ggc	gac	tat	cac	ttc	1680
Asn	Ser	Asn	Arg	Asp	Ala	Leu	Asp	Lys	Met	Val	Gly	Asp	Tyr	His	Phe	
	545				550					555					560	
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Thr	Cys	Asn	Val	Asn	Glu	Phe	Ala	Gln	Arg	Tyr	Ala	Glu	Glu	Gly	Asn	
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aac	gtc	tac	atg	tat	ctg	tac	acg	cac	cgc	agc	aaa	ggc	aac	ccg	tgg	1776
Asn	Val	Tyr	Met	Tyr	Leu	Tyr	Thr	His	Arg	Ser	Lys	Gly	Asn	Pro	Trp	
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Pro	Arg	Trp	Thr	Gly	Val	Met	His	Gly	Asp	Glu	Ile	Asn	Tyr	Val	Phe	
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Gly	Glu	Pro	Leu	Asn	Pro	Thr	Leu	Gly	Tyr	Thr	Glu	Asp	Glu	Lys	Asp	
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Asn Pro Asn Pro Asn Thr Ala Ser Ser Glu Phe Pro Glu Trp Pro Lys	
645 650 655	
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His Thr Ala His Gly Arg His Tyr Leu Glu Leu Gly Leu Asn Thr Ser	
660 665 670	
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Gln	

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Ala Ala Ile Gly Ser His Gln Leu Ser Ala Ala Ala Gly Val Gly Leu	
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65 70 75 80	
Ser Val Pro Ala Ala Gly Ala Ser Ser Ser Ser Ser Ser Leu Leu	
85 90 95	
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100 105 110	
Ala Asp Ala Phe Phe Thr Pro Tyr Ile Gly His Gly Glu Ser Val Arg	
115 120 125	
Ile Ile Asp Ala Glu Leu Gly Thr Leu Glu His Val His Ser Gly Ala	
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Thr Pro Arg Arg Arg Gly Leu Thr Arg Arg Glu Ser Asn Ser Asp Ala	
145 150 155 160	

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 Gly Ile Thr Val Asp Ala Pro Ser Gly Lys Lys Val Asp Val Trp Leu
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 Pro Arg Pro Ala Glu Lys Trp Thr Gly Val Leu Asn Thr Thr Thr Pro
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 Pro Asn Ser Cys Val Gln Ile Val Asp Thr Val Phe Gly Asp Phe Pro
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 Met Leu Trp Ile Phe Gly Gly Gly Phe Tyr Ser Gly Thr Ala Thr Leu
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 Val Ser Leu Gln Tyr Arg Val Ala Ser Leu Gly Phe Leu Phe Leu Gly
 305 310 315 320
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 Arg Val Thr Leu Phe Gly Glu Ser Ala Gly Ala Val Ser Val Ser Leu
 355 360 365
 His Leu Leu Ser Ala Leu Ser Arg Asp Leu Phe Gln Arg Ala Ile Leu
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 405 410 415
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 420 425 430
 Pro His Val Leu Val Asn Asn Glu Trp Gly Thr Leu Gly Ile Cys Glu
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 465 470 475 480
 Gly Ser Asn Thr Glu Glu Gly Tyr Tyr Phe Ile Ile Tyr Tyr Leu Thr
 485 490 495
 Glu Leu Leu Arg Lys Glu Glu Gly Val Thr Val Thr Arg Glu Glu Phe
 500 505 510
 Leu Gln Ala Val Arg Glu Leu Asn Pro Tyr Val Asn Gly Ala Ala Arg
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515

520

525

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